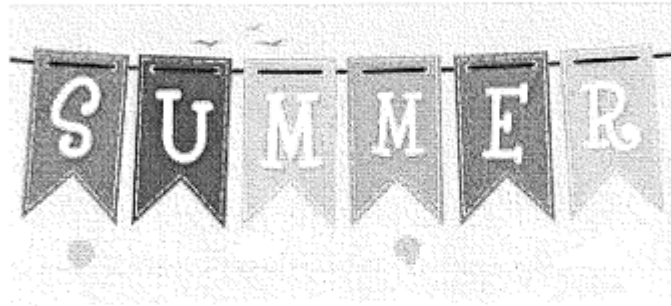


# Fairfield Public Schools



## Math Packet ANSWER KEY

For

Students Entering Fifth Grade  
Math Academy



# Grade 5 Practice Book



## ANSWER KEY

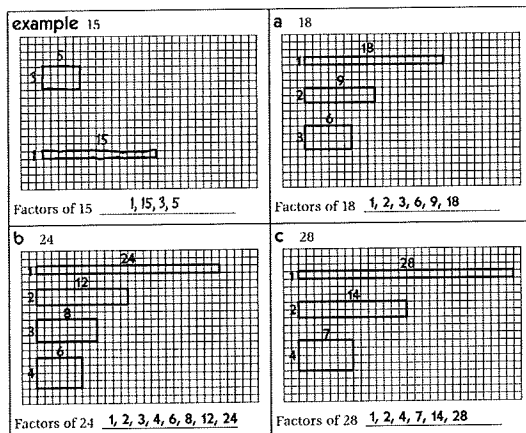
### Use after Unit One, Session 10

#### Page 1, Multiplication & Division Facts

- 1 0, 28, 48, 12, 36, 18, 56,  
16, 48, 49, 32, 9, 21, 30,  
40, 25, 64, 27, 36, 35, 42
- 2 7, 9, 8  
7, 7, 7
- 3 a  $2 \times 24 > 2 \times 16$   
b  $400 \div 80 < 400 \div 10$   
c  $77 - 20 > 67 - 20$   
d  $36 + 23 < 46 + 16$   
e  $458 - 129 = 358 - 29$   
f (challenge)  $3 \times 360 < 40 \times 30$   
g (challenge)  $50 \times 400 = 400 \times 50$   
h (challenge)  $2,500 \div 10 > 1,000 \div 5$   
i (challenge)  $24,000 \div 6 = 48,000 \div 12$

#### Page 2, Finding Factor Pairs

1



- 2 (challenge) 1, 2, 4, 5, 10, 20, 25, 50, 100

#### Page 3, Prime & Composite Numbers

1

a 5	prime	composite	1, 5
b 16	prime	composite	1, 2, 4, 8, 16
c 27	prime	composite	1, 3, 9, 27
d 31	prime	composite	1, 31
e 36	prime	composite	1, 2, 3, 4, 6, 9, 12, 18, 36
f 108	prime	composite	1, 2, 3, 4, 6, 9, 12, 18, 27, 36, 54, 108
g 126	prime	composite	1, 2, 3, 6, 7, 9, 14, 18, 21, 42, 63, 126

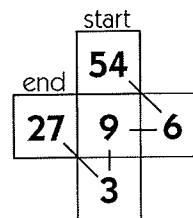
- 2 No. Students' explanations will vary. Example:  
*Prime numbers aren't always odd because 2 is an even number and it only has 2 factors: 1 and 2. Composite numbers aren't always even because 27 is a composite number with 4 factors: 1, 3, 9, and 27.*

#### Page 4, Multiplication Practice

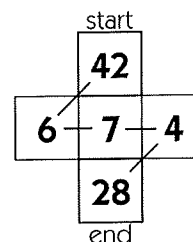
- 1 60, 80, 180, 240, 270, 200, 280,  
150, 200, 400, 480, 300, 360, 490,  
210, 630, 560, 480, 720, 720, 320
- 2 162, 145, 342  
424, 648, 868, 2598

#### Page 5, Multiplication, Division & Secret Path Problems

- 1 32, 63, 0, 25, 18, 42, 8,  
27, 18, 70, 35, 64, 27, 40,  
81, 28, 54, 49, 56, 72, 96
- 2 6, 6, 5  
4, 6, 3
- 3 a  $54 \div 6 = 9$ ,  $9 \times 3 = 27$



- b  $42 \div 6 = 7$ ,  $7 \times 4 = 28$





## Use after Unit One, Session 10 (cont.)

## Page 6, Multiples of 3 &amp; 4

1 a

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- b Students' responses will vary. Example: The multiples of 3 go in pattern of odd, even, odd, even. There are 3 in the first row, 3 in the second row, and 4 in the third row. That pattern repeats in the fourth, fifth, and sixth row, and again in the seventh, eighth, and ninth row. The numbers form diagonals on the grid.

2 a

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- b Students' responses will vary. Example: The multiples of 4 are all even. They all end in 0, 2, 4, 6, or 8. There are 2 in the first row and 3 in the second row. That pattern keeps repeating all the way down the grid. The numbers form straight lines on the grid.
- 3 Students' responses will vary. Example: Numbers that are multiples of both 3 and 4 are all even. They are all multiples of 12, like 12, 24, 36, 48, 60, and so on. They form diagonals on the grid.

## Page 7, Multiples of 6 &amp; 7

1 a

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- b Students' responses will vary. Example: The multiples of 6 are all even. Every other multiple of 6 is also a multiple of 12. The numbers form diagonals on the grid. There is a pattern in the 1's place that goes 6, 2, 8, 4, 0; 6, 2, 8, 4, 0.

2 a

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- b Students' responses will vary. Example: The multiples of 7 go in a pattern of odd, even, odd, even. Every other multiple of 7 is also a multiple of 14. The numbers form steep diagonals on the grid.
- 3 Students' responses will vary. Example: Numbers that are multiples of both 6 and 7 are also multiples of 42. There are only two of them on the grid, 42 and 84.
- 4 126, Students' explanations will vary. Example: Since numbers that are multiples of both 6 and 7 have to be multiples of 42, the next one after 84 must be 126 because  $84 + 42 = 126$ .



## Use after Unit One, Session 10 (cont.)

### Page 8, Multiplication & Multiples

- 1 30, 28, 36, 14, 63, 42, 48, 49, 28, 56, 48, 120, 84, 108
- 2 (challenge) Students' explanations will vary.  
Example: 6 is an even number. An even number plus an even number is always even. Any time you add 6 to a multiple of 6, you will always get an even number. 7 is an odd number. An odd plus an odd is even, so  $7 + 7 = 14$ . Then  $14 + 7$  is an odd number, 21, because you've added an even and an odd number. When you add 7 to 21, you're adding two odds again, so you get an even number, 28. That is why multiples of 7 can have any digit in the ones place.
- 3 (challenge) Students' explanations will vary.  
Example: Any number that is a multiple of both 6 and 7 has to be a multiple of 42. 42 is even, so every multiple of 42 will also be even because even plus even is always even.

### Page 9, Addition & Subtraction Review

- 1 599, 801, 1343, 5,026
- 2 256, 197, 748, 2,235
- 3 a 70  
b 10  
c 36  
d 44  
e (challenge) 9  
f (challenge) 2
- 4 a 
$$\begin{array}{r} 402 \\ -179 \\ \hline 223 \end{array}$$
  
b 
$$\begin{array}{r} 582 \\ -177 \\ \hline 405 \end{array}$$
  
c 
$$\begin{array}{r} 4246 \\ -1329 \\ \hline 2917 \end{array}$$
  
d 
$$\begin{array}{r} 3008 \\ -1296 \\ \hline 1712 \end{array}$$
  
e 
$$\begin{array}{r} 5063 \\ -3755 \\ \hline 1308 \end{array}$$

### Page 10, Run for the Arts

- 1 a Students' responses will vary. Example: *How many miles does Stephanie have to run to get more money than Emma?*  
b & c Stephanie is 11 years old. Her sister Emma is 9 years old. They are doing Run for the Arts at their school. Stephanie wants people to make pledges based on the number of miles she runs. Emma just wants people to pledge a certain amount of money. Their grandma pledged \$36 for Emma and \$8 per mile for Stephanie. Their uncle pledged \$18 for Emma and \$7 per mile for Stephanie. How many miles will Stephanie need to run to earn more money than Emma?  
d 4 miles. Students' work will vary.  
e Students' explanations will vary.

## Use after Unit One, Session 21

### Page 11, Order of Operations

- 1 a  $(9 + 3) \times (16 \div 8) \div 4$   
 $= 12 \times 2 \div 4$   
 $= 6$   
b  $(365 + 35) \div 5 + 3$   
 $= 400 \div 5 + 3$   
 $= 80 + 3$   
 $= 83$   
c  $36 \div 6 + 4 \times (27 \div 9)$   
 $= 36 \div 6 + 4 \times 3$   
 $= 6 + 12$   
 $= 18$   
d  $(26 - 18) \times 5 \div 10 + 10$   
 $= 8 \times 5 \div 10 + 10$   
 $= 40 \div 10 + 10$   
 $= 4 + 10$   
 $= 14$
- 2 Note: Students only need to insert parentheses. Solutions are shown for your benefit.  
a  $2 \times 18 - (5 + 15) \div 5 = 32$   
 $36 - 20 \div 5 = 32$   
 $36 - 4 = 32$   
 $32 = 32$



## Use after Unit One, Session 21 (cont.)

## Page 11, Order of Operations (cont.)

- 2 b  $(34 - 20) \div (4 + 3) = 2$   
 $14 \div 7 = 2$   
 $2 = 2$
- c  $14 = 50 - (42 \div (3 + 4) \times 6)$   
 $14 = 50 - (42 \div 7 \times 6)$   
 $14 = 50 - 6 \times 6$   
 $14 = 50 - 36$   
 $14 = 14$
- d  $21 = 7 + (16 - 8) \div 2 + (2 \times 25 \div 5)$   
 $21 = 7 + 8 \div 2 + (50 \div 5)$   
 $21 = 7 + 4 + 10$   
 $21 = 11 + 10$   
 $21 = 21$

- 3 (challenge) Student work will vary.  
 Example:  $3 + 2 \div 1$  and  $0 + 2 \times 4$

## Page 12, Understanding &amp; Using Number Properties

1

a $(69 + 45) + 55$	$69 + (45 + 55)$	169	C, A, D
b $4 \times 32$	$4 \times (30 + 2)$	128	C, A, D
c $4 \times (16 \times 25)$	$16 \times (4 \times 25)$ or $(4 \times 25) \times 16$	1,600	C, A, D
d $(250 + 86) + 50$	$86 + (250 + 50)$ or $(250 + 50) + 86$	386	C, A, D

## Page 13, Prime Factorization

- 1 Factor trees may vary.

a 18		1, 18 2, 9 3, 6
b 45		1, 45 3, 15 5, 9
c 72		1, 72 2, 36 3, 24 4, 18 6, 12 8, 9

- 2 1, 3, 9  
 3 9

## Page 14, Rounding Decimals

- 1 a 2.47 rounds down to 2.00  
 b 33.29 rounds down to 33.00  
 c 4.56 rounds up to 5.00
- 2 a 17.28 rounds up to 20.00

- b 35.67 rounds up to 40.00  
 c 43.05 rounds down to 40.00
- 3 a Yes, he has enough money.  
 b No, she does not have enough money.  
 c Yes, he has enough money.

## Page 15, More Prime Factorization

- 1 Factor trees may vary.

a	b
$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$	$72 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$

- 2 a 84, 96, 72  
 b 84, 96, 72  
 c 96, 72  
 d 96, 72
- 3 a It is even.  
 b Students' explanations will vary. Example: 12 is even. Every multiple of 12 will be even, because an even number plus an even number is always even. Since every multiple of 12 is even, any number that has 12 as a factor must be even.
- 4 You can be certain that 1, 2, and 5 are also factors of that number. (Note: 1 is a factor of all numbers. The prime factorization of 10 is  $2 \times 5$ , so 2 and 5 must be factors of any multiple of 10.)

## Page 16, Rounding &amp; Estimation

1

a 170	47	153	108	$50 + 150 = 200$ (153) $50 + 110 = 160$ (108)
b 190	83	96	132	$80 + 100 = 180$ (96) $80 + 130 = 210$ (132)
c 230	89	118	172	$90 + 120 = 210$ (118) $90 + 170 = 260$ (172)

- 2 a No. She will not finish the book. (second circle)  
 b No. He will not have enough money (second circle)

## Page 17, Time Calculations

- 1 60
- 2 a 2 hours, 15 minutes. Students' work will vary.  
 b 1 hour, 15 minutes. Students' work will vary.  
 c 2 hours, 30 minutes. Students' work will vary.



## Use after Unit One, Session 21 (cont.)

### Page 17, Time Calculations (cont.)

- 3 1 hour, 45 minutes. Students' work will vary.
- 4 Miguel gets more sleep each night. Students' explanations will vary. Miguel gets 10 hrs. Carlos gets 9 hrs. 45 min.

### Page 18, Roberta's Time & Money Problem

- 1 a Student responses will vary. Example: *What time does Roberta have to leave in the morning to make at least \$50 working for her grandma?*
- b & c Roberta's grandma asked her to help clean up her yard and garden on Saturday. She said she will pay Roberta \$8 per hour. Roberta's mom says she can go, but that she needs to be home by 4:30 pm. It takes Roberta 30 minutes to ride her bike the 5 miles to her grandma's house and 30 minutes to ride home. If she takes an hour break to eat lunch with her grandma, what time should she leave her home in the morning so that she can make at least \$50 and get home at 4:30?
- d Roberta needs to leave her home in the morning at 8:15 to make exactly \$50. If she leaves earlier, she can make more than \$50. Student work will vary.
- e Student explanations will vary.

### Page 19, Division, Multiplication & Prime Factorization

- 1 9, 6, 5, 8, 7, 4, 3
- 2 a 972  
b 1628  
c 3,776
- 3 (challenge) The greatest factor of 96 (other than 96) is 48.

### Page 20, Chin's Vegetable Patch

- 1 a Student responses will vary. Example: *How wide and how long should Chin make his vegetable patch to have the largest area?*
- b 9 feet long and 9 feet wide.

- 2 (challenge) Student responses will vary. Example: *Here is a list of all the rectangles you can make that have a perimeter of 36 feet. The area of each one is different, and they increase as the two dimensions get closer.*

$$1 \times 17 = 17 \text{ sq. ft.}$$

$$2 \times 16 = 32 \text{ sq. ft.}$$

$$3 \times 15 = 45 \text{ sq. ft.}$$

$$4 \times 14 = 56 \text{ sq. ft.}$$

$$5 \times 13 = 65 \text{ sq. ft.}$$

$$6 \times 12 = 72 \text{ sq. ft.}$$

$$7 \times 11 = 77 \text{ sq. ft.}$$

$$8 \times 10 = 80 \text{ sq. ft.}$$

$$9 \times 9 = 81 \text{ sq. ft.}$$

The area of each rectangle differs from the one below it by an odd number, starting with 15, then 13, 11, 9, 7, 5, 3, and finally 1 square foot. There isn't much difference between the area of an  $8 \times 10$  rectangle and a  $9 \times 9$  rectangle, but the  $9 \times 9$  is still a little bit bigger.

## Use after Unit Two, Session 10

### Page 21, Secret Paths & Multiplication Tables

- 1 a  $42 \div 7 = 6$ ,  $6 \times 6 = 36$ ,  $36 \div 4 = 9$ ,  $9 \div 3 = 3$

start		
42	6	6
7	4	36
3	3	9
end		

- b  $72 \div 9 = 8$ ,  $8 \times 3 = 24$ ,  $24 \div 6 = 4$ ,  $4 \times 7 = 28$

			start
6	24	3	
4	8	72	
28	7	9	end



## Use after Unit Two, Session 10 (cont.)

### Page 21, Secret Paths & Multiplication Tables (cont.)

- 2 a 54, 24, 42, 30, 18, 36, 48  
 b 14, 63, 28, 49, 35, 21, 42, 56  
 c 16, 72, 32, 56, 40, 24, 48, 64  
 d (challenge) 60, 90, 110, 120, 180, 125, 135, 175

### Page 22, Using Basic Facts to Solve Larger Problems

1	$8 \times 6 = 48$ $6 \times 8 = 48$ $48 \div 8 = 6$ $48 \div 6 = 8$	$80 \times 6 = 480$ $6 \times 80 = 480$ $480 \div 80 = 6$ $480 \div 6 = 80$	Student responses will vary. Student responses will vary. Student responses will vary. Student responses will vary.
2	$4 \times 9 = 36$ $9 \times 4 = 360$ $36 \div 4 = 9$ $36 \div 9 = 4$	$40 \times 9 = 360$ $9 \times 40 = 360$ $360 \div 40 = 9$ $360 \div 9 = 40$	Student responses will vary. Student responses will vary. Student responses will vary. Student responses will vary.
3	$3 \times 7 = 21$ $7 \times 3 = 21$ $21 \div 3 = 7$ $21 \div 7 = 3$	$30 \times 7 = 210$ $7 \times 30 = 210$ $210 \div 30 = 7$ $210 \div 7 = 30$	Student responses will vary. Student responses will vary. Student responses will vary. Student responses will vary.

### Page 23, Multiplying by Multiples of 10

- 1 100; 1,000; 10,000; 200; 2,000; 400  
 2 30, 6, 60, 3  
 3 a 24; 2,400; Problems and solutions will vary.  
 b 56; 560; Problems and solutions will vary.  
 c 27; 270; Problems and solutions will vary.  
 d 54; 5,400; Problems and solutions will vary.  
 e 36; 360; Problems and solutions will vary.

### Page 24, Multiplication Estimate & Check

- 1 a Estimate:  $40 \times 40 = 1,600$ ; Solution: 1,554  
 b Estimate:  $70 \times 30 = 2,100$ ; Solution: 1,898  
 c Estimate:  $30 \times 20 = 600$ ; Solution: 627  
 d Estimate:  $80 \times 40 = 3,200$ ; Solution: 3,192  
 e Estimate:  $60 \times 40 = 2,400$ ; Solution: 2,464  
 2 (challenge) 26 and 49

### Page 25, Using the Standard Multiplication Algorithm

- 1 2,400; 3,200; 2,700; 3,600; 3,000; 4,000  
 2 a 2,054  
 b 2,752  
 c 3,404  
 d 3,526  
 e 2,842

### Page 26, The Soccer Tournament & the Video Arcade

- 1 282 players; Students' work will vary.  
 2 \$5.25; Students' work will vary.

### Page 27, Metric Conversions

- 1 a 100; 1,000  
 b 100,000; 1,000,000  
 2 a 100; 1,000  
 b 400; 7000  
 3 a 100; 1,000  
 b 450; 3,500  
 7 a (challenge) 1,000,000  
 b (challenge) 4,500,000

### Page 28, Riding the Bus & Reading for Fun

- 1 \$16.10; Student work will vary.  
 2 Two hours and 55 minutes. Student work will vary.

### Page 29, More Estimate & Check Problems

- 1 a Estimate:  $40 \times 20 = 800$ ; Solution: 741  
 b Estimate:  $30 \times 40 = 1,200$ ; Solution: 1,064  
 c Estimate:  $90 \times 20 = 1,800$ ; Solution: 1,958  
 d Estimate:  $70 \times 50 = 3,500$ ; Solution: 3,692  
 e Estimate:  $60 \times 40 = 2,400$ ; Solution: 2,604  
 2 (challenge) 19 and 33

### Page 30, Race Car Problems

- 1 About 53 gallons of gas; Student work will vary.  
 2 About 2,279 gallons of gas, more or less; Student work will vary.

## Use after Unit Two, Session 20

### Page 31, Multiplication & Division Problems

- 1 8, 2, 8, 9, 7  
 9, 5, 7, 4, 7  
 2 a  $36 \div 12 = 3$  ( $12 \times 3 = 36$  is also acceptable);  
 3 cartons of 12 eggs  
 b  $42 \div 6 = 7$  ( $6 \times 7 = 42$  is also acceptable);  
 7 packs of soda  
 2 c  $72 \div 24 = 3$  ( $24 \times 3 = 72$  is also acceptable);  
 3 cases of soda  
 d  $27 \div 3 = 9$  ( $3 \times 9 = 27$  is also acceptable);  
 9 cans of tennis balls  
 e  $30 \div 10 = 3$  ( $10 \times 3 = 30$  is also acceptable);  
 3 hours



## Use after Unit Two, Session 20 (cont.)

### Page 32, Baking Cookies & Drying Clothes

- 5 batches ( $4\frac{1}{2}$  batches is also acceptable.) Students' work will vary.
- \$1.00 Students' work will vary.

### Page 33, Number Patterns

- 12, 15, ..., 24, 27, 30
  - 20, ..., 30, ..., 40, 45
  - 60, 75, ..., 105
- Both. Students' explanations will vary. Example:  $3 \times 5 = 15$ . Since 105 is a multiple of 15, it must be divisible by 3 and by 5.

3 a

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

b

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

c 24, 38, 72, and 96

d (challenge) 10 numbers. Students' explanations will vary. Example: 24 is the lowest common multiple of 6 and 8. So all the numbers that are multiples of 6 and 8 are multiples of 24. There are 10 multiples of 24 that are less than 250.

### Page 34, Snacks for the Field Trip

- Students' responses will vary. Example: Which snack costs the least per item?
  - Mrs. Ramos is taking 32 students on a field trip. She wants to provide snacks for the students to eat. Granola bars come in boxes of 8 and cost \$2.50 per box. Apples come in bags of 4 and cost \$1.50 per bag. Packages of peanut butter crackers come in boxes of 16 for \$4.69. At these prices, which of the snacks has the cheapest price per item: granola bars, apples, or peanut butter crackers?
  - 8 apples for \$3.00; 8 granola bars for \$2.50; 8 packs of peanut butter crackers for \$2.30 - something; Peanut butter crackers are least expensive. Students' work will vary.
  - Students' responses will vary.

### Page 35, Division on a Base-Ten Grid

- 28, 42, 140, 70, 280, 420
- Sketches may vary. Examples:

a  $322 \div 14 = 23$

322
- 280
42
- 42
0

14

$14 \times 20 = 280$

$14 \times 3 = 42$

b  $238 \div 14 = 17$

238
- 140
98
- 70
28
- 28
0

14

$14 \times 10 = 140$

$14 \times 5 = 70$

$14 \times 2 = 28$

### Page 36, Carla's Market & The Animal Shelter

- Carla should put her apples into bags of 4. ( $139 \div 4 = 34 \text{ R } 3$ ;  $139 \div 5 = 27 \text{ R } 4$ ) Students' work will vary.
- Jorge and Mrs. Johnson will be at the animal shelter twice on the very same day. Students' work will vary.





## Use after Unit Two, Session 20 (cont.)

### Page 37, Rounding & Division Practice

1 a Ones

b Tens

2

Number	ex 382	a 437	b 264	c 578	d 843	e 235
Nearest Ten	380	440	260	580	840	240
Nearest Hundred	400	400	300	600	800	200

3 6, 4, 6, 9

60, 40, 60, 90

4 a  $180 \div 3 = 60$ ; 60

b  $240 \div 6 = 40$ ; 40

c  $450 \div 5 = 90$ ; 90

### Page 38, More Rounding & Estimation Practice

1 a  $5 \times 30 = 150$ ,  $150 \div 30 = 5$ ,  $150 \div 5 = 30$

b  $6 \times 20 = 120$ ,  $120 \div 20 = 6$ ,  $120 \div 6 = 20$

c  $7 \times 40 = 280$ ,  $280 \div 40 = 7$ ,  $280 \div 7 = 40$

2 a Yes

b No

c No

d Yes

3 (challenge) Bakery A offers the better deal on muffins. Students' explanations will vary. Example: Bakery A sells 6 muffins for \$5.85, which means they each cost less than a dollar because  $6 \times \$1.00$  would be \$6.00. Bakery B sells 8 muffins for \$8.25, which means they each cost a little more than a dollar because  $8 \times \$1.00$  is \$8.00.

### Page 39, Estimating Money Amounts

1 Choice 3, about \$7 in his pocket

2 Choice 1, She is right. She cannot afford to buy two more milkshakes.

3 Choice 2, Chris is wrong. The bike is more expensive than 5 months of bus passes.

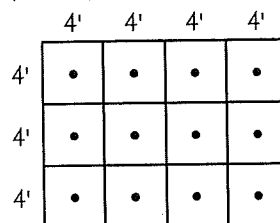
4 Choice 2, a bag of cherries for \$2.00

### Page 40, Kasey's Blueberry Bushes

1 a (challenge) Students' responses will vary. Example: How many rows of plants should Kasey make, and how many plants should be in each row?

b (challenge) Kasey should plant 3 rows of bushes with 4 in each row. (4 rows of bushes with 3 in

each row is also acceptable.) Students' work will vary. Example: Each plant needs a square of land that is 4' on each side. If you arrange 12 squares like that into a  $3 \times 4$  rectangle, the rectangle is  $12' \times 16'$ . The perimeter of the rectangle is  $(12 \times 2) + (16 \times 2)$ . That's  $24 + 32$ , which is 56'.



c (challenge) Students' explanations will vary.

## Use after Unit Three, Session 12

### Page 41, Classifying Quadrilaterals

1

Figure	How many right angles?	How many pairs of congruent sides?	How many pairs of parallel sides?	Circle the word(s) that describe(s) the figure.
a	no right angles	2 pairs of congruent sides	2 pairs of parallel sides	trapezoid rectangle <u>rhombus</u> square <u>parallelogram</u>
b	no right angles	1 pair of congruent sides	1 pair of parallel sides	<u>trapezoid</u> rectangle rhombus square parallelogram
c	no right angles	2 pairs of congruent sides	2 pairs of parallel sides	trapezoid rectangle <u>rhombus</u> square <u>parallelogram</u>

### Page 42, Drawing Quadrilaterals

1 Sketches will vary.

<p>ex square</p>	<p>a parallelogram that is not a rhombus or rectangle</p>
<p>b trapezoid</p>	<p>c rectangle that is not a square</p>



## Use after Unit Three, Session 12 (cont.)

### Page 42, Drawing Quadrilaterals (cont.)

- 2 (challenge) Students' responses and explanations will vary.

### Page 43, Classifying Triangles

1

Triangle	Acute Angles	Right Angles	Obtuse Angles	Congruent Sides	What Kind? (circle as many as apply)
a	2 acute angles	0 right angles	1 obtuse angle	0 congruent sides	acute, right, obtuse, equilateral, isosceles, scalene
b	2 acute angles	1 right angle	0 obtuse angles	2 congruent sides	acute, right, obtuse, equilateral, isosceles, scalene

### Page 44, Identifying & Drawing Triangles

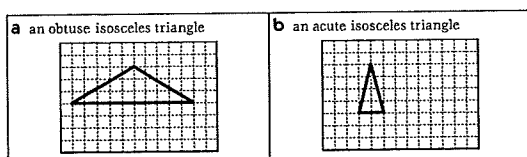
- 1 Fourth choice



- 2 Fourth choice



- 3 Students' drawings will vary. Examples:



- 4 (challenge) Students' explanations will vary.  
Example: *The sum of the angles in a triangle is always  $180^\circ$ . If you draw a triangle with one right angle, there are only 90 degrees left for the other two angles. Since an obtuse angle is greater than  $90^\circ$ , neither of the other two angles can possibly be obtuse. So, you cannot draw a right obtuse triangle.*

### Page 45, Finding the Areas of Rectangles, Triangles & Parallelograms

- 1 a 12 square units  
b 10 square units  
2 a 2 square units  
b 6 square units  
3 a 6 square units  
b 16 square units

### Page 46, Area Story Problems

- 1 28 square units. Students' work will vary.  
2 360 square yards. Students' work will vary.

### Page 47, Finding the Areas of Quadrilaterals

- 1 3 square units  
2 8 square units  
3 4 square units  
4 8 square units  
5 9 square units

### Page 48, Length & Perimeter

- 1 a  $3\frac{1}{4}$  inches ( $3\frac{2}{8}$  inches is also acceptable.)  
b  $5\frac{1}{8}$  inches  
c  $3\frac{7}{8}$  inches  
2 There are three other rectangles with integral sides that have a perimeter of 16:  
•  $4 \times 4$  (Area = 16 square units)  
•  $2 \times 6$  (Area = 12 square units)  
•  $1 \times 7$  (Area = 7 square units)  
3 (challenge) A circle that is 16 inches around has a greater area than a square with a perimeter of 16 inches. Students' explanations will vary.

### Page 49, Naming Transformations

- 1 a Choice 3, flip  
b Choice 1, slide  
c Choice 3, flip  
d Choice 2, turn

### Page 50, Which Two Transformations?

- 1 a Choice 3, turn then slide  
b Choice 1, flip then turn  
c Choice 2, flip then slide  
2 (challenge) Students' responses will vary.

## Use after Unit Three, Session 22

### Page 51, Finding the Areas of Parallelograms

- 1 a Base: 3, Height: 5, Area:  $3 \times 5 = 15$  square units  
b Base: 5, Height: 3, Area:  $3 \times 5 = 15$  square units  
c Base: 5, Height: 4, Area:  $5 \times 4 = 20$  square units

### Page 52, The Bulletin Board Problem

- 1 The area of each stripe was 6 square feet.  
2 There were 6 square feet of paper left over as scraps.

### Page 53, Finding the Area of a Triangle

- 1 a Base: 7, Height: 4, Area:  $(7 \times 4) \div 2 = 14$  square units



## Use after Unit Three, Session 22 (cont.)

### Page 53, Finding the Area of a Triangle (cont.)

- 1 b Base: 6, Height: 3, Area:  $(6 \times 3) \div 2 = 9$  square units  
 c Base: 8, Height: 5, Area:  $(8 \times 5) \div 2 = 20$  square units

### Page 54, More Area Problems

- 1 Figures B and C  
 2 a 6 square yards of bushes  
 b 54 square feet of bushes

### Page 55, Rita's Robot

- 1 One solution is shown on the chart below. There may be others.

Destination Coordinates	Spaces Moved	Running Total of Spaces Moved	Coins Collected	Running Total of Coins Collected
B, 4	5	5	12	12
D, 4	2	7	8	20
D, 10	6	13	16	36
E, 8	3	16	15	51
F, 5	4	20	14	65
F, 2	3	23	14	79
A, 0	7	30	0	79

### Page 56, Faces, Edges & Vertices

- 1 a Vertices,  
 b Edges,  
 c Faces  
 2 a 6, 12, 8, rectangular prism  
 b 5, 8, 5, square pyramid or rectangular pyramid  
 c 5, 9, 6, triangular prism  
 d 5, 9, 6, triangular prism  
 e 4, 6, 4, triangular pyramid  
 f 8, 18, 12, hexagonal prism

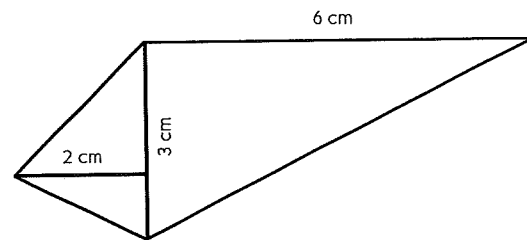
### Page 57, Surface Area & Volume

- 1 a Surface Area = 52 square cm,  
 Volume = 24 cubic cm  
 b Surface Area = 48 square cm,  
 Volume = 20 cubic cm  
 c Surface Area = 64 square cm,  
 Volume = 32 cubic cm  
 2 (challenge) 45 cubic cm

### Page 58, Measuring to Find the Area

- 1 a Area =  $4 \text{ cm} \times 7 \text{ cm}$ ; Area = 28 sq cm  
 b Area =  $(5 \text{ cm} \times 8 \text{ cm}) \div 2$ ; Area = 20 sq cm  
 c Area =  $6 \text{ cm} \times 3 \text{ cm}$ ; Area = 18 sq cm

- 2 (challenge) Area = 12 sq cm Students' work will vary. Example:



$$\begin{array}{rcl} 3 \times 6 = 18 & 18 \div 2 = 9 \\ 2 \times 3 = 6 & 6 \div 2 = 3 \\ 9 + 3 = 12 \text{ sq cm} \end{array}$$

### Page 59, Volume & Surface Area of Rectangular & Triangular Prisms

- 1 Volume = 32,000 cubic cm;  
 Surface Area = 7,200 sq cm  
 2 Volume = 12,000 cubic cm;  
 Surface Area = 3,800 sq cm  
 3 Volume = 18,000 cubic cm;  
 Surface Area = 4,800 sq cm  
 4 (challenge) Volume = 22,500 cubic cm;  
 Surface Area = 5,700 sq cm

### Page 60, Surface Area & Volume Story Problems

- 1 Present A takes more wrapping paper to cover. Students' work will vary. (The surface area of Present A is  $2(8 \times 8) + 4(8 \times 10) = 448 \text{ sq in}$ ; the surface area of Present B is  $(9 \times 9) + (15 \times 9) + (9 \times 12) + 2((9 \times 12) \div 2) = 432 \text{ sq in}$ .)  
 2 Tank A holds more water. Students' work will vary. (The volume of Tank A is  $24 \times 12 \times 18 = 5,184$  cubic inches; the volume of Tank B is  $(36 \times 24 \times 10) \div 2 = 4,320$  cubic inches.)

## Use after Unit Four, Session 10

### Page 61, Multiplication & Division Tables

- 1 a 60, 40, 90, 70, 50, 80, 30  
 b 30, 20, 45, 35, 25, 40, 15  
 2 a 9, 6, 5, 8, 7, 4, 3  
 b 18, 12, 10, 16, 14, 8, 6  
 3 Students' responses will vary. Example: 5 times a number is always half of 10 times the same number, like  $5 \times 6$  is 30 and  $10 \times 6$  is 60. A number divided by 5 is twice what the same number is divided by 10, like  $60 \div 5 = 12$  and  $60 \div 10 = 6$ .



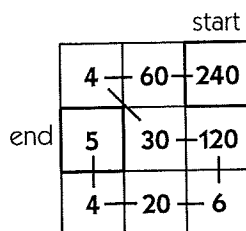
## Use after Unit Four, Session 10 (cont.)

### Page 62, Using Basic Fact Strategies to Multiply Larger Numbers

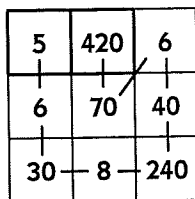
- 1 a 24, 48, 72, 240, 120, 480, 720, 360  
 b 32, 64, 96, 320, 160, 640, 960, 480  
 c 17, 34, 51, 170, 85, 340, 510, 255

### Page 63, Multiplication Problems & Mazes

- 1 a 36, 54, 180, 90  
 b 46, 69, 230, 115  
 c 68, 102, 340, 170  
 2 a Students' responses will vary.  
 b Students' responses will vary.  
 c Students' responses will vary.  
 3 a  $240 \div 60 = 4$ ;  $4 \times 30 = 120$ ;  
 $120 \div 6 = 20$ ;  $20 \div 4 = 5$



- b  $420 \div 70 = 6$ ;  $6 \times 40 = 240$ ;  
 $240 \div 8 = 30$ ;  $30 \div 6 = 5$   
 end start



### Page 64, More Division Story Problems

- 1 8 hours; Students' work will vary.  
 2 9 days, although she'll only have to read 17 pages the last day. Students' work will vary.  
 3 9 bags, with 7 candies left over. Students' work will vary.  
 4 (challenge) Students' responses will vary. Example: *The robins flew about 40 miles a day. This is a reasonable estimate because  $80 \times 40$  is 3,200. The number of days they actually flew was 78, so  $78 \times 40$  should be close to 3,000.*

### Page 65, Which Box Holds the Most?

- 1 a You need to know the volume of each box.  
 b Ebony should use Box B if she wants to send the most candy.  
 (Box A Volume:  $52 \times 22 \times 8 = 9,152$  cubic cm;  
 Box B Volume:  $22 \times 22 \times 22 = 10,648$  cubic cm;  
 Box C Volume:  $22 \times 17 \times 15 = 5,610$  cubic cm.)  
 Students' work will vary.  
 2 2,904 square cm; Students' work will vary.

### Page 66, Using Multiplication Menus to Solve Division Problems

- 1 a 16  
 b 32  
 c 160  
 d 80  
 e 320  
 f 240  
 2 a 18  
 b 29

### Page 67, Divisibility Rules

- 1 Students' responses in the last column of the chart will vary.

a 987	$9 + 8 + 7 = 24$	Yes	No	No	7
b 540	$5 + 4 + 0 = 9$	Yes	Yes	Yes	2, 4, 5, 10
c 762	$7 + 6 + 2 = 15$	Yes	Yes	No	2
d 747	$7 + 4 + 7 = 18$	Yes	No	Yes	1
e 570	$5 + 7 + 0 = 12$	Yes	Yes	No	2, 5, 10
f 645	$6 + 4 + 5 = 15$	Yes	No	No	5
g 792	$7 + 9 + 2 = 18$	Yes	Yes	Yes	2, 4, 8

### Page 68, Division with Menus & Sketches

- 1 a 19  
 b 38  
 c 190  
 d 95  
 e 380  
 f 285  
 2 a 32; Students' work will vary.  
 b 24; Students' work will vary.  
 3 a Yes, 456 is divisible by 3.  
 b Yes, 456 is divisible by 6.  
 c No



## Use after Unit Four, Session 10 (cont.)

### Page 69, Francine's Piece of Wood


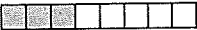
- The middle piece of wood. Students' work will vary. (Volume of triangular prism 1:  $(60 \times 40 \times 10) \div 2 = 12,000$  cubic inches; Volume of triangular prism 2:  $(40 \times 30 \times 30) \div 2 = 18,000$  cubic inches; Volume of triangular prism 3:  $(60 \times 40 \times 30) \div 2 = 36,000$  cubic inches.)
- (challenge) 4,800 square inches; Students' work will vary.




### Page 70, Money & Miles


- 10 CD's; Students' work will vary.
- 6 weeks (5 weeks and 2 days is also acceptable.)


## Use after Unit Four, Session 23

### Page 71, Fractions & Mixed Numbers

- ex  $\frac{1}{4}$   a  $\frac{3}{8}$  

b  $\frac{1}{2}$   c  $\frac{3}{4}$  
- a  $\frac{12}{8}$    $1\frac{3}{2}$  or  $1\frac{1}{2}$




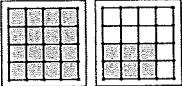
b  $\frac{3}{2}$    $1\frac{1}{2}$

c  $\frac{9}{8}$    $1\frac{1}{8}$
- A fraction is greater than 1 if the numerator is greater than the denominator.
- (challenge) The numerator must be greater than 16.

### Page 72, Triangles & Tents

- 18 square feet; Students' work will vary.
  - 360 square meters; Students' work will vary.
  - 25 square inches; Students' work will vary.
- They will need 60 square feet of fabric; Students' work will vary.

### Page 73, Equivalent Fractions on a Geoboard




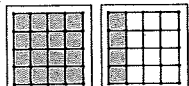

1		$\frac{1}{2}, \frac{2}{4}, \frac{4}{8}, \frac{8}{16}$	$\frac{1}{2} < \frac{5}{8}$
2		$\frac{3}{4}, \frac{6}{8}, \frac{12}{16}$	$\frac{3}{4} > \frac{1}{2}$
3		$\frac{5}{8}, \frac{10}{16}$	$\frac{5}{8} < \frac{3}{4}$
4		$1\frac{3}{8}, \frac{16}{16}, \frac{11}{8}, \frac{22}{16}$	$1\frac{3}{8} < 1\frac{1}{2}$

### Page 74, Metric Length, Area & Volume

- 1,000 meters
  - 3,000 meters
- 60 laps; Students' work will vary.
- 10 times; Students' work will vary.
- (challenge) 100 centimeters
  - (challenge) 10,000 square centimeters
  - (challenge) 1,000,000 cubic centimeters

### Page 75, Comparing Fractions

- Shading may vary. Examples shown below.

a $\frac{1}{2}$ 	b $\frac{1}{4}$ 	c $\frac{3}{8}$ 
d $\frac{10}{8}$ 	e $\frac{6}{4}$ 	

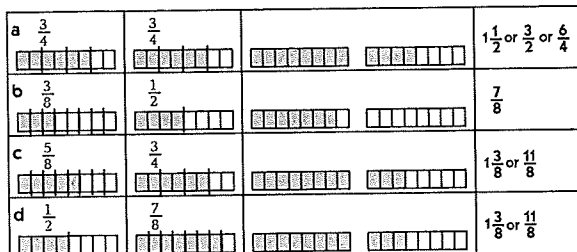
- $\frac{6}{4} = 1\frac{1}{2}$
  - $\frac{3}{8} < \frac{3}{4}$
  - $\frac{10}{8} < 1\frac{1}{2}$
  - $\frac{6}{8} < \frac{6}{4}$
  - $\frac{3}{8} > \frac{1}{4}$
- (challenge) Any number greater than 18
  - (challenge) 24
  - (challenge) Any number greater than 4



## Use after Unit Four, Session 23 (cont.)

## Page 76, Adding Fractions

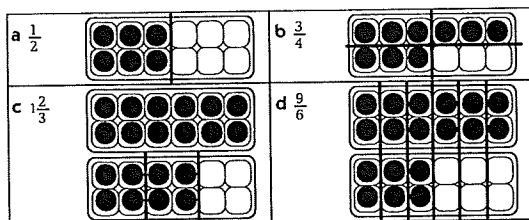
1



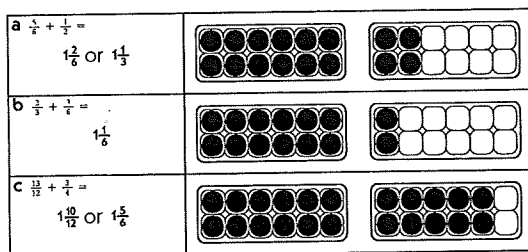
- 2 The sum must be greater than 1.  
3 The sum must be less than 1.

## Page 77, Egg Carton Fractions

- 1 Shading may vary. Examples shown below.



- 2 Shading may vary. Examples shown below.



- 3 a  $\frac{6}{10} + \frac{11}{10} > 1$   
b  $\frac{11}{10} + \frac{7}{6} > 2$   
c  $\frac{1}{12} + \frac{3}{14} < 1$

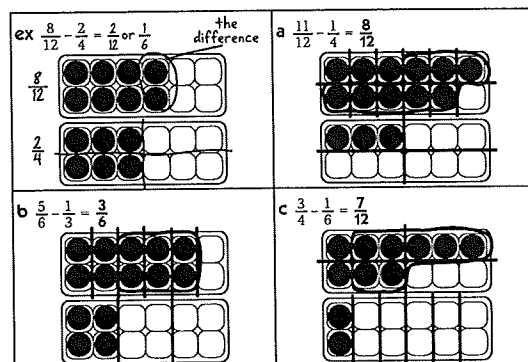
## Page 78, Fraction Story Problems

- 1  $2\frac{1}{4}$  miles; Students' work will vary.  
2  $4\frac{5}{8}$  pounds of fruit; Students' work will vary.

## Page 79, Division &amp; Fraction Practice

- 1 a 17 R 5; Students' work will vary.  
b 22 R 8; Students' work will vary.

2



## Page 80, More Fraction Story Problems

- 1  $2\frac{1}{12}$  pounds of packaging; Students' work will vary.  
2  $\frac{7}{8}$  of a mile; Students' work will vary.

## Use after Unit Five, Session 11

## Page 81, Multiplication &amp; Division Review

- 1 540, 360, 300, 420, 1200, 2400, 1800  
360, 240, 200, 280, 800, 1600, 1200  
2 30, 2, 7, 50, 60, 9, 80  
3 1,566; 14,432; 8,448;  
8,673; 19,520; 14,898; 71,982

## Page 82, Thinking About Divisibility

1 A number is divisible by 3 if the sum of its digits is divisible by 3.	a (117) 409 (423) 6,151 (3,213)
2a Finish the rule: A number is divisible by 5 if... it has a 0 or 5 in the ones place.	b (205) 452 (600) (2,365) 7,004
3 A number is divisible by 6 if the sum of its digits is divisible by 3 and it is even.	a (132) (270) (588) (2,706) 3,512
4 A number is divisible by 9 if the sum of its digits is divisible by 9.	a (225) (324) 965 (1,809) 2,584
5a Finish the rule: A number is divisible by 10 if... it has a 0 in the ones place.	b 208 (700) (810) 2,304 (8,430)

## Page 83, Products &amp; Secret Paths

- 1 a 14, 51; Students' work will vary.  
b 24, 42; Students' work will vary.  
c 33, 67; Students' work will vary.  
d 42, 65; Students' work will vary.



## Use after Unit Five, Session 11 (cont.)

## Page 83, Products &amp; Secret Paths (cont.)

- 2 a  $160 \div 80 = 2$ ;  $2 \times 50 = 100$ ;  
 $100 \div 10 = 10$ ;  $10 \times 4 = 40$

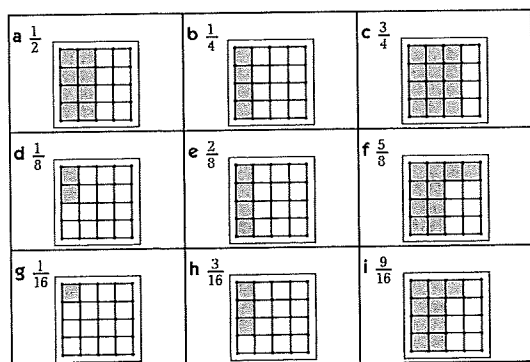
	end	start
4	40	160
10	80	2
10	100	50

- b  $540 \div 9 = 60$ ;  $60 \times 3 = 180$ ;  
 $180 \div 90 = 2$ ;  $2 \times 7 = 14$

	end	start
14	540	9
7	60	3
2	90	180

## Page 84, Coloring &amp; Comparing Fractions

- 1 Shading may vary. Examples shown below.



- 2 a  $\frac{1}{4} = \frac{2}{8}$   
 b  $\frac{3}{4} > \frac{5}{8}$   
 c  $\frac{3}{16} < \frac{1}{4}$   
 d  $\frac{1}{2} < \frac{9}{16}$   
 e  $\frac{5}{8} > \frac{9}{16}$
- 3 a  $\frac{1}{2} < \frac{9}{16}$   
 b  $\frac{1}{4} > \frac{3}{24}$   
 c  $\frac{9}{18} = \frac{1}{2}$

## Page 85, The Garage Roof &amp; The Parking Lot

- 1 600 square feet; Students' work will vary.  
 2 a 24 square meters  
 b 15 square inches  
 c 52 square centimeters  
 3 520 square yards; Students' work will vary.

## Page 86, Time Problems

- 1 5 days (4 days and 30 more minutes on the fifth day is also acceptable.) Students' work will vary.  
 2  $6\frac{1}{2}$  hours each week; Students' work will vary.  
 3 2 hours and 45 minutes; Students' work will vary.

## Page 87, Amanda's Height Graph

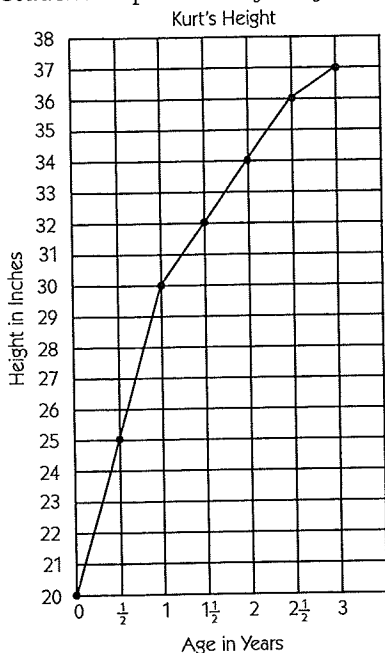
- 1 Amanda has been getting taller. Students' explanations will vary. Example: *The line on the graph keeps going up; it never goes down.*  
 2 Between 8 and 9 years old.  
 3 No, Amanda grew different amounts some years. Students' explanations will vary. Example: *The number of inches changes from one year to the next. Amanda grew 4 inches the first year on the graph. She grew 3 inches the next year and 2 inches the year after that.*  
 4 Students' responses will vary. Example: *I think Amanda will be about 5 feet tall by the time she is 13. When she was 10, she was 54 inches tall. When she was 11, she was 56 inches, so she grew 2 inches that year. Even if she only grows 2 inches a year for the next 2 years, that will be 60 inches, which is 5 feet.*  
 5 Students' responses will vary. Example: *I think the growth line would keep going up at least 2 inches a year until she was 15 or 16. After that, it would go up very slowly or maybe not at all, so you'd see a steep line between ages 5 and 15 or 16, and then it would get almost flat because people don't grow any taller after they get to be about 16.*



## Use after Unit Five, Session 11 (cont.)

## Page 88, Kurt's Height Graph

- 1 Student responses may vary. Example:



- 2 Students' responses will vary. Example: Kurt grew faster in his first year than in the next two years. He grew 5 inches every 6 months for the first year. Then he grew 2 inches every 6 months until he turned  $2\frac{1}{2}$ . Between  $2\frac{1}{2}$  and 3, he only grew 1 inch, so it seems like he's slowing down.
- 3 Students' responses will vary. Example: Kurt grew really fast in the first year, and then he slowed down in the next two years.

## Page 89, Prime Factorization Review

1

a 24	$  \begin{array}{c}  24 \\  \swarrow \searrow \\  2 \quad 12 \\  \quad \swarrow \searrow \\  \quad 2 \quad 6 \\  \quad \quad \swarrow \searrow \\  \quad \quad 2 \quad 3  \end{array}  $	1, 24 2, 12 3, 8 4, 6
b 48	$  \begin{array}{c}  48 \\  \swarrow \searrow \\  2 \quad 24 \\  \quad \swarrow \searrow \\  \quad 2 \quad 12 \\  \quad \quad \swarrow \searrow \\  \quad \quad 2 \quad 6 \\  \quad \quad \quad \swarrow \searrow \\  \quad \quad \quad 2 \quad 3  \end{array}  $	1, 48 2, 24 3, 16 4, 12 6, 8
c 78	$  \begin{array}{c}  78 \\  \swarrow \searrow \\  2 \quad 39 \\  \quad \swarrow \searrow \\  \quad 3 \quad 13  \end{array}  $	1, 78 2, 39 3, 26 6, 13

- 2 1, 2, 3, 6  
3 6

## Page 90, Which Bag of Candy?

- 1 Lemon Sours; students' work will vary.  
2 16 candies

## Use after Unit Five, Session 19

## Page 91, Square Inches, Square Feet &amp; Square Yards

- 1 a 29 square yards; students' work will vary.  
b (challenge) 261 square feet; students' work will vary.  
2 a 900 square inches; students' work will vary.  
b (challenge)  $6\frac{1}{4}$  square feet; students' work will vary.

## Page 92, The Frozen Yogurt Problem

- 1 a Students' responses will vary. Example: *How many tubs of frozen yogurt do the kids need for parents' night at their school?*  
b & c The fourth and fifth graders are hosting a special night for their parents at school, and they want to serve frozen yogurt. Altogether there will be 95 students, 5 teachers, and 1 principal. Six students are not coming. Fifty-two students will bring 2 parents, and 43 students will bring 1 parent with them. Each tub of frozen yogurt serves 14 people. How many tubs of frozen yogurt will they need to have enough for everyone?  
d 18 tubs of frozen yogurt; students' work will vary.  
e Students' answers will vary.

## Page 93, The Homework Survey

- 1 14 middle-school students  
2 3 high-school students  
3 12 high-school students  
4 Overall, high-school students spend more time on homework each night. Students' explanations will vary. Example: *The mode and the median for the middle-school students is 1 hour a night. The mode and the median for the high-school students is  $1\frac{1}{2}$  hours a night. If you count up all the hours, the whole group of middle-school students spends 26.5 hours each night on homework, and the high-school students spend 46 hours each night. The average amount of time is a little less than 1 hour for the middle-school students and about  $1\frac{1}{2}$  hours a night for high-school students.*





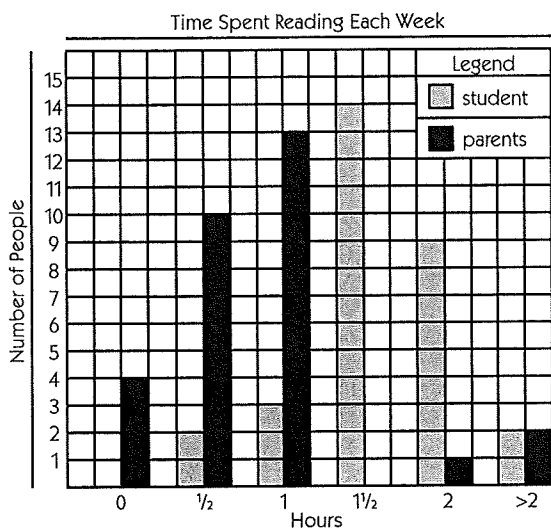
## Use after Unit Five, Session 19 (cont.)

### Page 93, The Homework Survey (cont.)

- 5 (challenge) Students' responses will vary. The middle-school data is clustered tightly around half an hour and 1 hour, while there is more variation in the high-school data. It would be reasonable to say that it's easier to use the data to make estimates about *any* middle-school student than it is to make estimates about *any* high-school student.

### Page 94, The Fifth-Grade Reading Survey

- 1 Students' responses will vary. Example: *Most parents read 1 hour or less each week. Most students read 1½ hours or more each week.*
- 2 Students' graphs may vary somewhat. Example:



- 3 Students' responses will vary. Example: *You can see that students read way more than parents each week.*

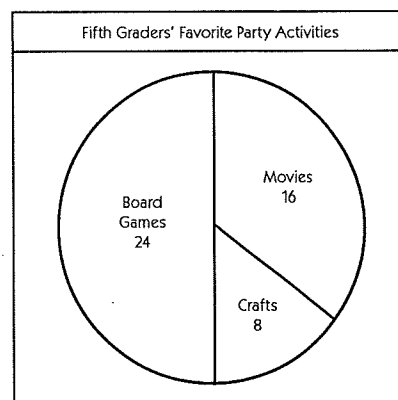
### Page 95, Reading & Interpreting a Circle Graph

- 1 Soda
- 2 Milk
- 3 Less than half of the students prefer soda. Students' explanations will vary. Example: *One way to tell that less than half of the students prefer soda is because the soda section takes up less than half the circle. Another way to tell is because the soda section says 22, and 22 is less than half of 48.*

- 4 Students' responses will vary. Example: *They should serve 24 bottles of water, 20 bottles of juice, and 8 bottles of milk. That adds up to 52 bottles, but leaves a few extra in case someone changes their mind. Some kids will probably pick juice because it's sweet, but some of them might pick water. Maybe a couple of them will switch to milk, but probably not very many.*

### Page 96, Constructing & Interpreting a Circle Graph

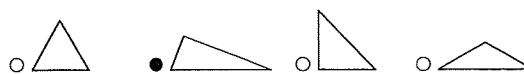
- 1 Students' responses will vary. Example: *The most popular choice is board games.*
- 2 Students' work will vary. Example:



- 3 Students' responses will vary. Example: *Half the kids voted for board games. A third of them voted for a movie, and only a sixth voted for crafts.*

### Page 97, Classifying Triangles & Quadrilaterals

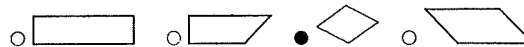
1 a



- b Students' responses will vary. Example: *Because every triangle in the group has 3 sides that are different lengths.*

c Scalene triangle

2 a



- b Students' responses will vary. Example: *Because every quadrilateral in the group has 4 congruent sides.*

c Rhombus



## Use after Unit Five, Session 19 (cont.)

### Page 98, The Robot's Path

- 1 A quadrilateral or rectangle
- 2 The dimensions of the rectangle could be 1 and 6, 2 and 5, or 3 and 4. (The rectangle with dimensions 3 and 4 is the only one that allows the robot to collect 170 gold pieces.)
- 3 A5, D5, and D1

### Page 99, Division Estimate & Check

1 $396 \div 17$	$17 \times 10 = 170$ , $17 \times 20 = 340$ , $17 \times 5 = 85$ , $17 \times 2 = 34$	The answer will be less than <u>25</u> and greater than <u>20</u> .	Students' responses will vary.	23 R5
2 $275 \div 13$	$13 \times 10 = 130$ , $13 \times 20 = 260$ , $13 \times 5 = 65$ , $13 \times 2 = 26$	The answer will be less than <u>22</u> and greater than <u>20</u> .	Students' responses will vary.	21 R2

### Page 100, The Book Problem



- 1 a Students' responses will vary. Example: *How much money can Mrs. Suarez spend on each book if she buys one for each student in her class?*
- b \$6.25; Students' work will vary.
- c Students' responses will vary. Example: *Yes. I know it has to be a little more than \$5.00 each because  $24 \times 5 = 120$ , and she has \$150. If you add another 24 to 120, you can see that the answer should be just a little over \$6.00 per book.*

## Use after Unit Six, Session 7

### Page 101, Simplifying Fractions

- 1 a 1, 2, 4
- b 1, 2, 4, 8
- c 1, 3
- d 1, 2, 3, 6
- e 1, 2, 3, 4, 6, 12

2

a $\frac{4}{6}$	1, 2, 4	1, 2, 3, 6	2	$\frac{4 \div 2}{6 \div 2} = \frac{2}{3}$	 $\frac{4}{6} = \frac{2}{3}$
b $\frac{3}{12}$	1, 3	1, 2, 3, 4, 6, 12	3	$\frac{3 \div 3}{12 \div 3} = \frac{1}{4}$	 $\frac{3}{12} = \frac{1}{4}$

### Page 102, Using the Greatest Common Factor to Simplify Fractions

1

a $\frac{14}{16}$	1, 2, 7, 14	1, 2, 4, 8, 16	2	$\frac{14 \div 2}{16 \div 2} = \frac{7}{8}$	$\frac{7}{8}$
b $\frac{16}{21}$	1, 2, 4, 8, 16	1, 3, 7, 21	1	$\frac{16 \div 1}{21 \div 1} = \frac{16}{21}$	$\frac{16}{21}$
c $\frac{27}{36}$	1, 3, 9, 27	1, 2, 3, 4, 6, 9, 12, 18, 36	9	$\frac{27 \div 9}{36 \div 9} = \frac{3}{4}$	$\frac{3}{4}$
d $\frac{15}{36}$	1, 3, 5, 15	1, 2, 3, 4, 6, 9, 12, 18, 36	3	$\frac{15 \div 3}{36 \div 3} = \frac{5}{12}$	$\frac{5}{12}$

- 2 a  $\frac{2}{7}, \frac{12}{42}$  ( $\frac{18}{63}$  and other equivalent fractions also acceptable)
- b  $\frac{1}{5}, \frac{6}{30}$  ( $\frac{9}{45}$  and other equivalent fractions also acceptable)
- c  $\frac{14}{24}, \frac{21}{36}$  ( $\frac{28}{48}$  and other equivalent fractions also acceptable)

### Page 103, Rewriting & Comparing Fractions

- 1  $\frac{11}{18}$  is greater than  $\frac{7}{12}$
- 2  $\frac{11}{18}$  is exactly  $\frac{1}{36}$  greater than  $\frac{7}{12}$
- 3  $\frac{43}{36}, \frac{17}{36}$

### Page 104, Using the Least Common Multiple to Compare Fractions

- 1 a The least common multiple of 8 and 12 is 24.  
Multiples of 12: 12, 24  
Multiples of 8: 8, 16, 24
- b The least common multiple of 6 and 15 is 30.  
Multiples of 15: 15, 30  
Multiples of 6: 6, 12, 18, 24, 30
- c The least common multiple of 6 and 14 is 42.  
Multiples of 14: 14, 28, 42  
Multiples of 6: 6, 12, 18, 24, 30, 36, 42



## Use after Unit Six, Session 7 (cont.)

## Page 104, Using the Least Common Multiple to Compare Fractions (cont.)

2

a	$\frac{5}{8}$ and $\frac{9}{12}$	$\frac{5 \times 3}{8 \times 3} = \frac{15}{24}$	$\frac{9 \times 2}{12 \times 2} = \frac{18}{24}$	$\frac{15}{24} < \frac{18}{24}$ so $\frac{5}{8} < \frac{9}{12}$
b	$\frac{4}{6}$ and $\frac{12}{15}$	$\frac{4 \times 5}{6 \times 5} = \frac{20}{30}$	$\frac{12 \times 2}{15 \times 2} = \frac{24}{30}$	$\frac{20}{30} < \frac{24}{30}$ so $\frac{4}{6} < \frac{12}{15}$
c	$\frac{5}{6}$ and $\frac{11}{14}$	$\frac{5 \times 7}{6 \times 7} = \frac{35}{42}$	$\frac{11 \times 3}{14 \times 3} = \frac{33}{42}$	$\frac{35}{42} > \frac{33}{42}$ so $\frac{5}{6} > \frac{11}{14}$

## Page 105, Finding Equivalent Fractions

- 1 a  $\frac{3}{5}$  and  $\frac{18}{30}$  ( $\frac{27}{45}$  and other equivalent fractions also acceptable)  
 b  $\frac{2}{3}$  and  $\frac{8}{12}$  ( $\frac{12}{18}$  and other equivalent fractions also acceptable)  
 c  $\frac{5}{6}$  and  $\frac{30}{36}$  ( $\frac{45}{54}$  and other equivalent fractions also acceptable)
- 2 a  $\frac{1}{3}$ ,  $\frac{8}{24}$ ,  $\frac{12}{36}$   
 b  $\frac{6}{8}$ ,  $\frac{9}{12}$ ,  $\frac{15}{20}$ ,  $\frac{30}{40}$   
 c  $\frac{6}{30}$ ,  $\frac{1}{5}$ ,  $\frac{9}{45}$
- 3 Students' responses will vary. Example: *You can divide the numerator and denominator by the same number. You can also multiply the numerator and denominator by the same number.*

## Page 106, Rewriting &amp; Comparing More Fractions

- 1 a The least common multiple of 6 and 7 is 42.  
 Multiples of 6: 6, 12, 18, 24, 30, 36, 42  
 Multiples of 7: 7, 14, 21, 28, 35, 42
- b The least common multiple of 9 and 12 is 36.  
 Multiples of 9: 9, 18, 27, 36  
 Multiples of 12: 12, 24, 36
- c The least common multiple of 9 and 15 is 45.  
 Multiples of 9: 9, 18, 27, 36, 45  
 Multiples of 15: 15, 30, 45

2

a	$\frac{4}{6}$ and $\frac{5}{7}$	$\frac{4 \times 7}{6 \times 7} = \frac{28}{42}$	$\frac{5 \times 6}{7 \times 6} = \frac{30}{42}$	$\frac{28}{42} < \frac{30}{42}$ so $\frac{4}{6} < \frac{5}{7}$
b	$\frac{7}{9}$ and $\frac{9}{12}$	$\frac{7 \times 4}{9 \times 4} = \frac{28}{36}$	$\frac{9 \times 3}{12 \times 3} = \frac{27}{36}$	$\frac{28}{36} > \frac{27}{36}$ so $\frac{7}{9} > \frac{9}{12}$
c	$\frac{8}{9}$ and $\frac{13}{15}$	$\frac{8 \times 5}{9 \times 5} = \frac{40}{45}$	$\frac{13 \times 3}{15 \times 3} = \frac{39}{45}$	$\frac{40}{45} > \frac{39}{45}$ so $\frac{8}{9} > \frac{13}{15}$

## Page 107, Adding Fractions

1

a	$\frac{2}{3}$	
b	$\frac{1}{4}$	
c	$\frac{3}{4}$	
d	$\frac{1}{2}$	
e	$\frac{5}{6}$	

2

a	$\frac{2}{3} + \frac{3}{4}$	$\frac{2}{3} + \frac{3}{4} = \frac{8}{12} + \frac{9}{12}$	
b	$\frac{1}{3} + \frac{5}{6}$	$\frac{1}{3} + \frac{5}{6} = \frac{2}{6} + \frac{5}{6}$	
c	$\frac{7}{12} + \frac{3}{4}$	$\frac{7}{12} + \frac{3}{4} = \frac{7}{12} + \frac{9}{12}$	

## Page 108, Adding Fractions &amp; Mixed Numbers

- 1 Solutions may vary.

a	$\frac{4}{6} \div \frac{2}{2} = \frac{2}{3}$	b	$\frac{12}{15} \div \frac{3}{3} = \frac{4}{5}$
c	$\frac{12}{18} \div \frac{6}{6} = \frac{2}{3}$	d	$\frac{8}{12} \div \frac{4}{4} = \frac{2}{3}$
e	$\frac{4}{12} \div \frac{4}{4} = \frac{1}{3}$		

- 2 a  $\frac{3}{4} + \frac{2}{8} = \frac{3}{4} + \frac{1}{4}$ ;  $\frac{3}{4} + \frac{1}{4} = \frac{4}{4}$  and  $\frac{4}{4} = 1$   
 b  $\frac{6}{8} + \frac{9}{12} = \frac{3}{4} + \frac{3}{4}$ ;  $\frac{3}{4} + \frac{3}{4} = \frac{6}{4}$  and  $\frac{6}{4} = 1\frac{2}{4}$  ( $1\frac{1}{2}$  is also acceptable)  
 c  $\frac{3^6}{12} + \frac{4^1}{2} = \frac{3^6}{12} + \frac{4^6}{12}$ ;  $\frac{3^6}{12} + \frac{4^6}{12} = \frac{7^{12}}{12}$  and  $\frac{7^{12}}{12} = 8$   
 d  $1^5/8 + 2^3/4 = 1^5/8 + 2^6/8$ ;  $1^5/8 + 2^6/8 = 3^{11}/8$  and  $3^{11}/8 = 4^3/8$

## Page 109, Fraction Subtraction

- 1 Solutions may vary.

a	$\frac{3}{4} - \frac{2}{3}$	$\frac{3}{4} - \frac{2}{3} = \frac{9}{12} - \frac{8}{12} = \frac{1}{12}$	
b	$\frac{5}{6} - \frac{1}{3}$	$\frac{5}{6} - \frac{1}{3} = \frac{5}{6} - \frac{2}{6} = \frac{3}{6}$ or $\frac{1}{2}$	
c	$\frac{15}{12} - \frac{3}{4}$	$\frac{15}{12} - \frac{3}{4} = \frac{5}{4} - \frac{3}{4} = \frac{2}{4}$ or $\frac{1}{2}$	

- 2 a  $\frac{4}{5}$   
 b  $592^{17}/18$



## Use after Unit Six, Session 7 (cont.)

### Page 110, More Fraction Subtraction

- 1 a  $1\frac{4}{8}$  ( $1\frac{1}{2}$  is also acceptable)  
b  $2\frac{3}{6}$  ( $2\frac{1}{2}$  is also acceptable)  
c  $2\frac{1}{8}$   
d  $4\frac{2}{3}$
- 2 a  $\frac{17}{12}$   
b  $\frac{17}{6}$   
c  $\frac{13}{4}$   
d  $\frac{14}{3}$
- 3 Solutions may vary.  
a  $\frac{7}{4} - \frac{2}{4} = \frac{5}{4}$  ( $1\frac{1}{4}$  is also acceptable)  
b  $\frac{30}{24} - \frac{9}{24} = \frac{21}{24}$ ;  $\frac{21}{24} = \frac{7}{8}$   
c  $\frac{29}{24} - \frac{18}{24} = \frac{11}{24}$   
d  $\frac{310}{16} - \frac{112}{16} = \frac{200}{16}$ ;  $\frac{200}{16} = \frac{125}{8}$  or  $15\frac{5}{8}$

## Use after Unit Six, Session 19

### Page 111, Modeling Decimals

- 1 a 1.004  
b 2.316  
c 1.07

### Page 112, Decimal Sums & Differences

- 1  $1.236 + 1.07 = 2.306$
- 2  $1.236 + 1.7 = 2.936$
- 3  $1.236 + 1.007 = 2.243$
- 4  $2.131 - 1.004 = 1.127$
- 5  $2.131 - 1.04 = 1.091$
- 6  $2.131 - 1.4 = 0.731$

### Page 113, Using Models to Add & Subtract Decimals

- 1 Less than 3. Students' explanations will vary.  
Example: *Because  $1 + 1 = 2$ , and  $.009 + .762$  is less than 1 more.*
- 2 Greater than 3. Students' explanations will vary.  
Example: *Because  $1 + 1 = 2$ , and  $.5 + .5$  is already 1 more, but there are also some extra hundredths and thousandths.*
- 3 Less than 1. Students' explanations will vary.  
Example: *Because you have to subtract 2 tenths, and you have less than 1 tenth. You'll have to split the unit mat into tenths, and when you take 2 tenths away, it will leave less than 1.*

### Page 114, Adding & Subtracting Decimals

- 1 7.357; 2.479; 12.222; 6.223; 3.919; 4.631
- 2 1.893; 1.331; 1.86; 3.131; 2.579; 4.006
- 3  $1.26 + 0.773$  and  $1.502 + 0.6$

### Page 115, Decimal Addition & Subtraction

- 1 Students' responses will vary.
- 2 16.419; 18.248; 21.08; 11.482  
8.512; 12.405
- 3 2.98; 2.212; 4.545; 3.173  
7.165; 0.948

### Page 116, Decimal Story Problems

- 1 a Fifty-two hundredths of a second or .52 seconds  
b Bolt ran the race more than a half-second faster than the second-place winner. Students' explanations will vary. Example: *Half is fifty hundredths; Bolt won by 2 hundredths more than half a second.*
- 2 a More than half as long.  
b Students' explanations will vary. Example: *Yes, because half of 19.30 is 9.65, so 9.69 is 4 hundredths of a second more than half as long.*

### Page 117, Finding the Common Denominator

- 1 a  $\frac{1}{2}$   
b  $\frac{3}{5}$   
c  $\frac{5}{6}$   
d  $\frac{2}{3}$   
e  $\frac{2}{3}$
- 2 Students' work will vary. Common denominators are listed below.  
a  $\frac{3}{12}$  and  $\frac{9}{12}$  or  $\frac{1}{4}$  and  $\frac{3}{4}$   
b  $\frac{21}{24}$  and  $\frac{20}{24}$   
c  $\frac{14}{30}$  and  $\frac{20}{30}$

### Page 118, Fraction Estimate & Check

Students' work will vary. Sum or difference listed below

- 1  $1\frac{4}{12}$  or  $1\frac{1}{3}$
- 2  $2\frac{2}{8}$  or  $2\frac{1}{4}$
- 3  $1\frac{1}{24}$
- 4  $\frac{1}{2}$
- 5  $\frac{1}{12}$



## Use after Unit Six, Session 19 (cont.)

### Page 119, Lauren's Puppy

- $\frac{3}{16}$  of a pound; students' work will vary.
  - $5\frac{1}{2}$  pounds; students' work will vary.
- Andre's puppy weighs 4 pounds

### Page 120, Rachel & Dimitri's Trip to the Store

- Dimitri spent \$.07, or 7 cents, more than Rachel. Students' work will vary.
- Yes. He had \$.62 left from his \$5 bill and Rachel only needs \$0.24.

## Use after Unit Seven, Session 8

### Page 121, Order of Operations Review

1

<b>a</b> $\underline{451} = 463 - 180 \div (3 \times (2 + 3))$ $463 - 180 \div (3 \times (2 + 3)) = 463 - 180 \div (3 \times 5)$ $463 - 180 \div (3 \times 5) = 463 - 180 \div 15$ $463 - 180 \div 15 = 463 - 12$ $463 - 12 = 451$	<b>b</b> $\underline{266} = (249 - 192) \div 3 \times 14$ $(249 - 192) \div 3 \times 14 = 57 \div 3 \times 14$ $57 \div 3 \times 14 = 19 \times 14$ $19 \times 14 = 266$
<b>c</b> $\underline{57} = 36 + 14 \times (182 - 164) \div 12$ $36 + 14 \times (182 - 164) \div 12 = 36 + 14 \times 18 \div 12$ $36 + 14 \times 18 \div 12 = 36 + 252 \div 12$ $36 + 252 \div 12 = 36 + 21$ $36 + 21 = 57$	<b>d</b> $\underline{198} = (9 \div 3 + 213) - 72 \div 4$ $(9 \div 3 + 213) - 72 \div 4 = (3 + 213) - 72 \div 4$ $(3 + 213) - 72 \div 4 = 216 - 72 \div 4$ $216 - 72 \div 4 = 216 - 18$ $216 - 18 = 198$

- $3 \times 9 + (18 + 36) \div 9 = 33$
  - $2 = 140 \div (2 + 12) - 4 \times 2$

### Page 122, Reviewing Three Number Properties

- Answers may vary.

<b>a</b> $12 \times 23$	$(10 \times 23) + (2 \times 23)$	276	C A <b>D</b>
<b>b</b> $(50 \times 73) \times 2$	$73 \times (50 \times 2)$	7,300	<b>C</b> A D
<b>c</b> $15 + (135 + 86)$	$(15 + 135) + 86$	236	C A <b>D</b>
<b>d</b> $35 \times 8$	$(30 \times 8) + (5 \times 8)$	280	C A <b>D</b>
<b>e</b> $25 \times (4 \times 329)$	$(25 \times 4) \times 329$	32,900	C <b>A</b> D
<b>f</b> $(34 \times 50) \times 20$	$34 \times (50 \times 20)$	34,000	C <b>A</b> D

### Page 123, Finding Patterns & Solving Problems

- 46, 55, 64, Explanation: add 9 more each time
  - 142, 131, 120, Explanation: subtract 11 each time
  - 243, 729, 2187, Explanation: multiply by 3 each time
  - 32, 64, 128, Explanation: double the number each time
- (challenge) 91; students' work will vary.
  - (challenge) 301; students' work will vary.
  - (challenge) odd; students' explanations will vary.

### Page 124, Solving Equations & Pattern Problems

- 5
  - 8
  - 12
  - 89
  - 9
  - 22
  - 24

- Students' responses will vary. Example:  $53 - \underline{\quad} = 43$
- (challenge) 442; students' work will vary.
  - (challenge) odd; students' explanations will vary.

### Page 125, Variables & Expressions

- 12
  - 24
  - 30
  - 48
- You would make \$90.
- $4 + 23 = 27$
  - $4 + 103 = 107$
  - $3 \times 2 - 2 = 4$
  - $3 \times 4 - 2 = 10$
  - $2 \times 7 + 12 = 26$
  - $2 \times 10 + 12 = 32$

### Page 126, Cheetahs & Muffins

- Third choice,  $5 \times c$
  - 30 pounds; students' work will vary.
  - 14 cheetahs; students' work will vary.
- Second choice,  $m - 8$
  - 16 muffins; students' work will vary.
  - 20 muffins; students' work will vary.

### Page 127, Adding Fractions with Different Denominators

- $\frac{51}{54}$  OR  $\frac{17}{18}$
  - $\frac{148}{96}$  OR  $1\frac{52}{96}$  OR  $1\frac{13}{24}$
  - $\frac{53}{55}$
  - $\frac{170}{144}$  OR  $1\frac{26}{144}$  OR  $1\frac{13}{72}$

### Page 128, Danny's Yard Work

- Third choice,  $4 \times t + 10$
  - \$26.00; students' work will vary.
  - 6 hours; students' work will vary.
- (challenge) Students' responses will vary. Example:
  - $4 \times t + 10 \times t$
  - This expression would show how much money Danny would make if he had 2 different jobs. The variable  $t$  would be equal to what Danny charges per hour. He would work 2 jobs—1 for 4 hours, 1 for 10 hours.



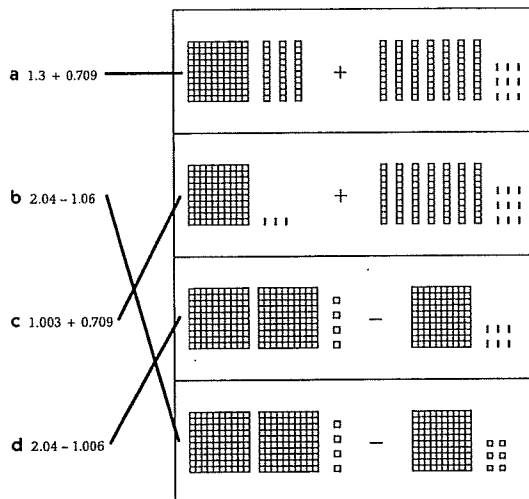
## Use after Unit Seven, Session 8 (cont.)

### Page 129, Subtracting Fractions with Different Denominators

- 1 a  $\frac{18}{35}$ ; students' work will vary.  
 b  $\frac{1}{15}$ ; students' work will vary.  
 c  $\frac{7}{12}$  or  $\frac{14}{24}$ ; students' work will vary.  
 d  $\frac{25}{104}$ ; students' work will vary.

### Page 130, Modeling, Adding & Subtracting Decimals

1



- 2 a >  
 b <  
 c <  
 d >

## Use during Unit Eight

### Page 131, Division Review

- 1 Students' work will vary. 32 R 3  
 2 Students' work will vary. 28 R 2

### Page 132, Jorge & Maribel's Present

- 1 a No; cost of present unknown.  
 b Third choice: The present costs \$73.  
 c 5 hours (4 hours and 50 minutes is also acceptable.) Students' work will vary.

### Page 133, Fraction Addition & Subtraction Review

- 1 a  $\frac{13}{30}$   
 b  $\frac{25}{21}$  or  $1\frac{4}{21}$   
 2 Mabel ran exactly  $\frac{3}{40}$  of a mile farther than Annie. Students' work will vary.  
 3  $\frac{47}{40}$  or  $1\frac{7}{40}$  miles

### Page 134, More Fraction Problems

- 1 a  $\frac{4}{10}$  (or  $\frac{2}{5}$ )  
 b  $\frac{8}{12}$  (or  $\frac{2}{3}$ )  
 c  $1\frac{1}{8}$   
 d  $1\frac{2}{12}$  (or  $1\frac{1}{6}$ )  
 e  $1\frac{2}{8}$  (or  $1\frac{1}{4}$ )  
 2  $4\frac{1}{8}$  kilometers; students' work will vary.

### Page 135, Fraction Addition & Subtraction Story Problems

- 1 a  $1\frac{11}{70}$   
 b  $\frac{13}{63}$   
 2  $3\frac{5}{12}$  cups of snack mix  
 3 Julianne drank more  $\frac{11}{48}$  more of a water bottle than Lisa.

### Page 136, Reading & Interpreting a Double Bar Graph

- 1  $2\frac{1}{4}$  feet  
 2  $6\frac{3}{4}$  feet  
 3  $16\frac{3}{4}$  feet  
 4 Students' responses will vary. Example: *All three of the snakes were about the same length when they were born. By the time they grew up, the boa was a little more than twice as long as the ball python, and the anaconda was more than twice as long as the boa. The anaconda was between four and five times as long as the ball python.*

### Page 137, Decimal Addition & Subtraction Review

- 1 Students' responses will vary.  
 2 9.995; 17.593; 30.28; 10.208  
 8.319; 6.398  
 3 2.728; 2.228; 1.18; 5.071  
 3.786; 0.913


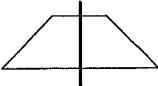



### Page 138, The Python Problem

- 1 a Yes  
 b None of the choices is helpful.  
 c Eduardo's python was longer by 1.96 cm.



## Use during Unit Eight (cont.)

## Page 139, Drawing Lines of Symmetry

<p>1</p>  <p>This figure has <u>0</u> line(s) of symmetry.</p>	
<p>2</p>  <p>This figure has <u>1</u> line(s) of symmetry.</p>	<p>3</p>  <p>This figure has <u>2</u> line(s) of symmetry.</p>
<p>4</p>  <p>This figure has <u>0</u> line(s) of symmetry.</p>	<p>5</p>  <p>This figure has <u>1</u> line(s) of symmetry.</p>

## Page 140, Classifying Triangles Review

- 1 3; Students' explanations will vary.  
Example: *An acute triangle that is also equilateral has exactly 3 lines of symmetry.*
- 2 1; Students' explanations will vary.  
Example: *A right triangle that is also isosceles has exactly 1 line of symmetry.*
- 3 1; Students' explanations will vary.  
Example: *An obtuse triangle that is also isosceles has exactly 1 line of symmetry.*

NAME \_\_\_\_\_

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**Skills Review** page 2 of 2**4** Fill in the blanks.

**a**  $\frac{1}{2}$  of 84 = 42

**b**  $\frac{1}{4}$  of 84 = 21

**c**  $\frac{1}{8}$  of 84 = 10.5

**d**  $\frac{1}{2}$  of 124 = 62

**e**  $\frac{1}{4}$  of 124 = 31

**5** True or False?

**a**  $\frac{1}{4}$  of 28 =  $\frac{1}{8}$  of 14 **F**

**b**  $\frac{1}{8}$  of 32 =  $\frac{1}{4}$  of 16 **T**

**c**  $\frac{1}{2}$  of 56 =  $\frac{1}{4}$  of 28 **F**

**6** Add or subtract. Use the space below to show your work if necessary.

$\frac{1}{2} + \frac{5}{8} = \underline{\frac{9}{8}} = 1 \frac{1}{8}$	$2\frac{1}{6} - \frac{7}{12} = \underline{1 \frac{7}{12}}$	$8\frac{3}{4} + 1\frac{5}{12} = \underline{10 \frac{1}{6}}$
$6.89 + 8.12 = \underline{15.01}$	$10.01 - 3.72 = \underline{6.29}$	$3.12 - 2.76 = \underline{0.36}$
$\frac{2}{3} + \underline{\frac{7}{9}} = 1\frac{4}{9}$	$4.08 - \underline{1.09} = 2.99$	$5\frac{1}{2} - \underline{2\frac{3}{4}} = 2\frac{3}{4}$

**7 CHALLENGE** Randall has \$5.00 to spend on snacks at the movies. Use the table to figure out three snacks Randall can buy for \$5.00. Show your thinking. Is that the only combination of three snacks Randall can buy? How do you know?

Popcorn - small	\$2.75
Popcorn - medium	\$2.99
Popcorn - large	\$3.49
Cookie	\$2.25
Lemonade	\$1.19
Candy Bar	\$1.29
Granola Bar	\$0.89

There are several combinations Randall can buy.  
A few examples:

Cookie + lemonade + candy bar: \$4.73

Cookie + lemonade + granola bar: \$4.33

Sm. popcorn + lemonade + granola bar: \$4.83

Sm. popcorn + candy bar + granola bar: \$4.93



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**Dante's Decision** page 1 of 2

Dante wants to spend some of his allowance money, but he is having a hard time deciding what to buy. He loves baseball cards, packs of gum, and bouncy balls. Fill in the ratio tables and answer the questions to help Dante keep track of what he can buy.

- 1** Dante's favorite packs of baseball cards cost \$1.70 each. Fill in the table below to show the cost of different numbers of packs of baseball cards.

Packs of Baseball Cards	1	2	4	8	9	10	15	25
Cost	\$1.70	\$3.40	\$6.80	\$13.60	\$15.30	\$17	\$25.50	\$42.50

- 2** Dante's favorite gum costs \$0.60 a pack. Fill in the table below to show the cost of different numbers of packs of gum.

Packs of Gum	1	2	5	9	10	19	20	25
Cost	\$0.60	\$1.20	\$3.00	\$5.40	\$6.00	\$11.40	\$12.00	\$15.00

- 3** Bouncy balls come in packages that cost \$3.15 each. Fill in the table below to show the cost of different numbers of packs of bouncy balls.

Packs of Bouncy Balls	1	2	3	6	9	10	12	20
Cost	\$3.15	\$6.30	\$9.45	\$18.90	\$28.35	\$31.50	\$37.80	\$63.00

- 4** Dante decided to spend only \$20.00 of his allowance and save the rest for later.

- a** Can he buy 12 packs of baseball cards? Why or why not?

**No. 12 packs costs \$20.40.**

- b** Can he buy 30 packs of gum? Why or why not?

**Yes. 30 packs of gum costs \$18.**

- c** How much of the \$20.00 will he still have after he buys 5 packs of bouncy balls?

**\$4.25 (\$20 – \$15.75)**

(continued on next page)

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**Maria's Multiplication** page 2 of 2**Review**

- 5** Finish the number pattern for the rule:  $2n + 1$

3, 5, 7, 9, 11, 13, 15, 17, 19, 21

- 6** Finish the number pattern for the rule:  $4n + 1$

5, 9, 13, 17, 21, 25, 29, 33, 37, 41

- 7** What do you notice about the two number patterns you just completed? How are they similar? How are they different?

Observations will vary. Some possibilities:

*They both have only odd numbers.*

*All of the numbers in the second pattern appear in the first pattern.*

*Every other number in the first pattern is a number from the second pattern.*

*In the first pattern you add 2 to get the next number; in the second pattern you add 4.*

- 8** Multiply:

**a**  $8.7 \times 10 = \underline{87}$

**b**  $8.7 \times 100 = \underline{870}$

**c**  $8.7 \times 1,000 = \underline{8,700}$

**d**  $8.7 \times 0.1 = \underline{0.87}$

**e**  $8.7 \times 0.01 = \underline{0.087}$

- f** Look at the zeroes and the decimal points in your answers. What do you notice?

Observations will vary. Example:

*When you multiply by a whole number power of 10 (like 10 or 100) you move the decimal to the right by the number of zeroes in the power of 10. When you multiply by a power of 10 less than 1 (like 0.1 or 0.01) you move the decimal point to the left by the number of digits to the right of the decimal point.*

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## Fraction Times Fraction Checkpoint page 1 of 2

- 1 Henry's little sister spilled ketchup on one of his homework problems.

$$\frac{3}{5} \times \text{[ketchup-covered bubble]} = \underline{\hspace{2cm}}$$

- a Fill in the bubble to show what Henry should be able to tell for sure about the answer, even though he can't see the other number.

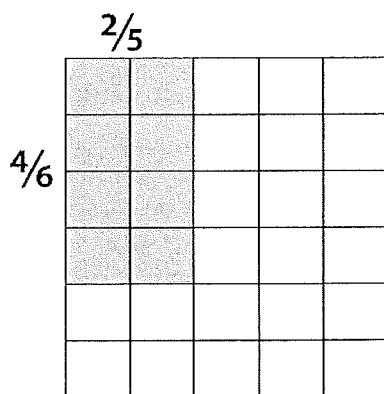
- ☐ The answer will be less than  $\frac{3}{5}$ .  
☐ The answer will be greater than the ketchup-covered number.  
☒ The answer will be less than the ketchup-covered number.

- b Explain your answer. How do you know the statement you chose is true?

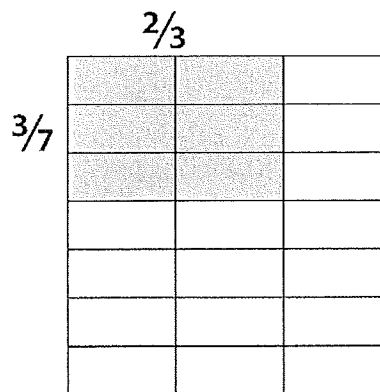
Explanations will vary. Example: *When you multiply a number by  $\frac{3}{5}$ , it's like finding only  $\frac{3}{5}$  of the number, so the answer has to be less than the starting number.*

- 2 Use the rectangular arrays to model and solve each problem. Show all your work.

a  $\frac{4}{6} \times \frac{2}{5} = \frac{8}{30}$  or  $\frac{4}{15}$



b  $\frac{3}{7} \times \frac{2}{3} = \frac{6}{21}$  or  $\frac{2}{7}$



Work will vary.

(continued on next page)



## Use after Unit One, Session 10 (cont.)

## Page 10, Centimeters, Decimeters &amp; Meters (cont.)

- 3 a (challenge) Sherman crawled 237 cm farther than Sidney.  
 b (challenge) Explanations will vary.  
 Example: *Sidney was faster because he would have gone 5 meters or 500 cm in an hour.*

## Use after Unit One, Session 21

## Page 11, Multiplication &amp; Division Facts

- 1 24, 16, 42, 30, 24, 18, 0  
 8, 36, 36, 40, 15, 63, 48  
 9, 6, 9, 4  
 2, 6, 2, 7  
 2 18, 20, 35, 32, 64  
 2, 5, 3, 5, 8  
 3 (challenge) Responses will vary. Example: *Since 16 is  $2 \times 8$ , you can multiply the answer to  $4 \times 8$  by 2 to get  $4 \times 16$ .  $4 \times 8 = 32$  and  $32 \times 2 = 64$ , so  $4 \times 16 = 32$ .*

## Page 12, Sandwiches, Pizza &amp; Books

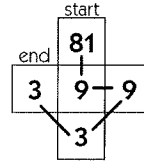
- 1 \$18  
 2 4 pieces of pizza  
 3 (challenge) 12,706 books

## Page 13, All in the Family

1

<b>example</b>  $2 \times 8 = 16$ $8 \times 2 = 16$ $16 \div 8 = 2$ $16 \div 2 = 8$	<b>a</b>  $3 \times 7 = 21$ $7 \times 3 = 21$ $21 \div 7 = 3$ $21 \div 3 = 7$	<b>b</b>  $5 \times 6 = 30$ $6 \times 5 = 30$ $30 \div 6 = 5$ $30 \div 5 = 6$
<b>c</b>  $8 \times 6 = 48$ $6 \times 8 = 48$ $48 \div 6 = 8$ $48 \div 8 = 6$	<b>d</b>  $8 \times 4 = 32$ $4 \times 8 = 32$ $32 \div 4 = 8$ $32 \div 8 = 4$	<b>e</b>  $3 \times 6 = 18$ $6 \times 3 = 18$ $18 \div 6 = 3$ $18 \div 3 = 6$

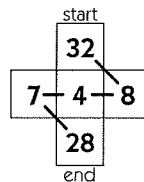
- 2 a (challenge)



$$81 \div 9 = 9$$

$$9 \div 3 = 3$$

- b (challenge)



$$32 \div 8 = 4$$

$$4 \times 7 = 28$$

## Page 14, Flowers, Shells &amp; Cards

- 1 24 flowers  
 2 6 shells  
 3 (challenge) 6 bundles

## Page 15, Multiples &amp; Multiplication Facts

- 1 a 9, 21  
 b 12, 24  
 c 27, 54  
 2 a 6, 8, 14, 10 should be circled.  
 b 8, 16, 20, 28 should be circled.  
 c 21, 14, 42, 35 should be circled.  
 d 32, 48, 16, 72 should be circled.  
 e 21, 18, 36, 12 should be circled.  
 3 81, 27, 16, 12, 56  
 8, 2, 6, 9, 4  
 (challenge) 12, 24, 48, 96, 192

## Page 16, Tasty Treats

- 1 40 milkshakes  
 2 There are two possible answers:  
 2 cookies each, with 3 cookies left over OR  
 $2\frac{1}{2}$  cookies each  
 3 (challenge) 197 pounds of vegetables

# Grade 4 Practice Book



## ANSWER KEY

### Use after Unit One, Session 10

#### Page 1, Multi-Digit Addition Review

- 327; 779; 962; 1,177  
829; 1,513; 1,346; 7,818
- a 1,262  
b 1,896
- (challenge)

$$\begin{array}{r} \boxed{97} \\ + \boxed{204} \\ \hline 301 \end{array} \quad \begin{array}{r} \boxed{97} \\ + \boxed{297} \\ \hline 394 \end{array} \quad \begin{array}{r} \boxed{405} \\ + \boxed{607} \\ \hline 1,012 \end{array} \quad \begin{array}{r} \boxed{607} \\ + \boxed{498} \\ \hline 1,105 \end{array} \quad \begin{array}{r} \boxed{297} \\ + \boxed{405} \\ \hline 702 \end{array}$$

#### Page 2, Addition Story Problems

- 561 pounds of apples
- 3,164 people
- (challenge) 30,300 feet

#### Page 3, Multi-Digit Subtraction Review

- 135; 2,241; 91; 2,381  
3,632; 6,192; 188; 2,918
- a 38  
b 7,293
- a (challenge)  $301 - 34 = 267$  (This is just one possible solution; there are many.)  
b (challenge)  $674 - 352 = 322$  (This is just one possible solution; there are many.)  
c (challenge)  $860 - 341 = 519$

#### Page 4, Subtraction Story Problems

- 52 breakfast sandwiches
- 5,961 bags of potato chips
- (challenge) 11,916 people were still at the game

#### Page 5, Add, Subtract & Multiply

- \$3.99; \$27.26; \$50.71; \$15.17  
\$2.51; \$1.58; \$47.73; \$1.78
- a \$7.11  
b \$502.43
- 24, 20, 27, 14, 0, 6  
24, 28, 32, 0, 49, 20

#### Page 6, Shopping Problems

- \$5.34
- \$1.83
- (challenge) \$41.10

#### Page 7, Addition, Subtraction & Clock Problems

- 972; 904; 7,106; 575  
3,918; 697; 2,198; 5,666
- a 25 minutes  
b 20 minutes  
c (challenge) 15 minutes

#### Page 8, Miles, Books & Jellybeans

- 587 miles
- 385 books
- (challenge) 783 jellybeans

#### Page 9, Round 'Em Up!

- 6,814; 1,006; 7,045; 4,275
- a 50  
b 50  
c 40  
d 90  
e 120  
f 860  
g 270  
h 990  
i 1,250  
j 2,050
- a 200  
b 300  
c 800  
d 400  
e 100  
f 200  
g 800  
h 400  
i 700
- a–e (challenge) Solutions will vary.

#### Page 10, Centimeters, Decimeters & Meters

- a 280 centimeters  
b 28 decimeters
- a 200  
b 20  
c 2



## Use after Unit One, Session 21 (cont.)

## Page 17, Arrays &amp; Factors

1

<p>a 16</p> <p>2 <math>\times</math> 8 = 16</p> <p>8 <math>\times</math> 2 = 16</p> <p>16 <math>\div</math> 8 = 2</p> <p>16 <math>\div</math> 2 = 8</p> <p>(A <math>4 \times 4</math> square accompanied by the appropriate equations is also acceptable.)</p>	<p>b 18</p> <p>3 <math>\times</math> 6 = 18</p> <p>6 <math>\times</math> 3 = 18</p> <p>18 <math>\div</math> 6 = 3</p> <p>18 <math>\div</math> 3 = 6</p> <p>(A <math>2 \times 9</math> rectangle accompanied by the appropriate equations is also acceptable.)</p>
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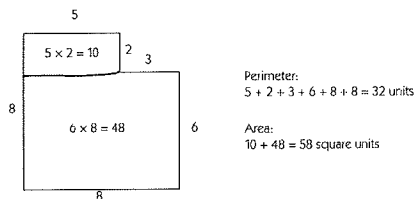
- 2 a 1, 2, 4, 8, 16  
b 1, 17  
c 1, 2, 3, 4, 6, 8, 12, 24  
d 1, 3, 9  
e 1, 2, 3, 4, 6, 9, 12, 18, 36
- 3 a 17 should be circled.  
b 16, 9, and 36 should have squares around them.
- 4 a (challenge)  $306 + 398 = 704$   
b (challenge)  $623 - 446 = 177$

## Page 18, The Big Race &amp; the Walk-a-Thon

- 1 3 hours  
2 30 kilometers  
3 4 groups of 8, or 8 groups of 4, or 16 groups of 2.

## Page 19, Area &amp; Perimeter

- 1 a Perimeter:  $4 + 4 + 4 + 4 = 16$  units;  
Area:  $4 \times 4 = 16$  square units  
b Perimeter:  $4 + 4 + 6 + 6 = 20$  units;  
Area:  $4 \times 6 = 24$  square units  
c Perimeter:  $3 + 3 + 7 + 7 = 20$  units;  
Area:  $3 \times 7 = 21$  square units
- 2 (challenge) Perimeter = 32 units  
Area = 58 square units  
Students' work will vary. Example:



## Page 20, Area &amp; Perimeter Story Problems

- 1 a 72 square feet  
b 34 feet
- 2 a 28 square feet  
b 22 feet
- 3 1,500 feet

## Use after Unit Two, Session 10

## Page 21, Place Value &amp; Perimeter

- 1 a 9,248  
b 17,633  
c 32,058
- 2 a Hundreds, six hundred  
b Hundreds, zero  
c Ten thousands, forty thousand
- 3 a 720 inches  
b 962 inches

## Page 22, Measuring to Find Area &amp; Perimeter

<p>example</p> <p>Area <math>6 \text{ cm}^2</math></p> <p>Perimeter <math>10 \text{ cm}</math></p>	<p>1</p> <p>Area <math>15 \text{ cm}^2</math></p> <p>Perimeter <math>16 \text{ cm}</math></p>
<p>2</p> <p>Area <math>12 \text{ cm}^2</math></p> <p>Perimeter <math>16 \text{ cm}</math></p>	<p>3</p> <p>Area <math>20 \text{ cm}^2</math></p> <p>Perimeter <math>18 \text{ cm}</math></p>
<p>4</p> <p>Area <math>5 \text{ cm}^2</math> Perimeter <math>9 \text{ cm}</math></p>	

## Page 23, Multiplication &amp; Division Practice

- 1 21, 16, 36, 25, 8, 54, 12  
8, 4, 2, 8  
6, 5, 8, 6
- 2 63, 0, 49, 5, 40  
6, 8, 8, 4, 6



## Use after Unit Two, Session 10 (cont.)

### Page 23, Multiplication & Division Practice (cont.)

- 3 40; 400; 4,000; 70; 700; 7,000  
800; 50; 6,000; 20; 900; 0
- 4 (challenge) 100, 8, 10

### Page 24, Multiplication & Division Story Problems

- 1 700 bags of dried apples
- 2 20 miles
- 3 6,000 footballs
- 4 (challenge) Students' work will vary. Possible equal groups are:
- 4 groups of 25 seashells
  - 5 groups of 20 seashells
  - 10 groups of 10 seashells
  - 20 groups of 5 seashells
  - 25 groups of 4 seashells
  - 50 groups of 2 seashells

### Page 25, Expanded Notation & Fact Families

- 1 a 20,456  
b 32,112  
c 7,046  
d 96,035  
e 63,007  
f 13,855  
g 50,305
- 2 a 1,000  
b 300  
c 7,000  
d 30  
e 400  
f 60  
g 400

3

a	b
$\begin{array}{r} 7 \\ 3 \overline{) 21} \end{array}$	$\begin{array}{r} 9 \\ 6 \overline{) 54} \end{array}$
$\begin{array}{l} 3 \times 7 = 21 \\ 7 \times 3 = 21 \\ 21 \div 7 = 3 \\ 21 \div 3 = 7 \end{array}$	$\begin{array}{l} 6 \times 9 = 54 \\ 9 \times 6 = 54 \\ 54 \div 9 = 6 \\ 54 \div 6 = 9 \end{array}$

### Page 26, Money & Stadium Seats

- 1 \$65.00
- 2 2504 empty seats
- 3 (challenge) \$1,335.00 more

### Page 27, Time after Time

- 1 Clock hands should show 7:35.
- 2 Clock hands should show 9:50.
- 3 Clock hands should show 5:20.
- 4 (challenge) Responses will vary. Example: *Clock hands that show 4:15 on the first clock and 5:40 on the second clock*

### Page 28, Time & Distance Problems

- 1 a 1 hour and 10 minutes  
b (challenge) 3:55 pm
- 2 a 1,000 centimeters each hour  
b 10 meters  
c (challenge) 15 meters; explanations will vary.  
Example: *Half of 10 is 5, so the spider will crawl 5 more meters in 1 and a half hours.*

### Page 29, Number Riddles

- 1
- |         |  |        |
|---------|--|--------|
| example | This number has a 2 in the thousands place.            | 46,305 |
| a       | This is an even number with a 6 in the hundreds place. | 32,617 |
| b       | This number is equal to $30,000 + 4,000 + 80 + 2$ .    | 45,052 |
| c       | This number is 1000 less than 46,052.                  | 19,628 |
| d       | This is an odd number with a 6 in the thousands place. | 34,082 |
- 2 a Thirty-three thousand, seventy-two  
b Eighty-six thousand, one hundred five  
c Seventy-four thousand, six hundred twenty-nine
- 3 (challenge) Answers will vary. Example: 5,730

### Page 30, The Arcade & the Animal Shelter

- 1 a Responses will vary. Example: *How much money does Rene have?*  
b \$2.25
- 2 a Responses will vary. Example: *How much money did Lin get for the shelter?*  
b 75¢

## Use after Unit Two, Session 21

### Page 31, Counting Coins & Bills

- 1 a \$0.66  
b \$0.50  
c \$0.17  
d \$0.75  
e \$0.61



## Use after Unit Two, Session 21 (cont.)

## Page 31, Counting Coins &amp; Bills (cont.)

- 2 a \$3.47  
 b \$1.74  
 c \$1.12  
 d \$5.85  
 e \$3.91  
 f (challenge) \$7.97  
 g (challenge) \$16.45

## Page 32, How Much Change?

- 1 \$3.35  
 2 \$6.11  
 3 (challenge) \$4.06

## Page 33, Multiplying with Money

- 1 a 75; students' work will vary.  
 b 105; students' work will vary.  
 2 a (challenge) 310; students' work will vary.  
 b (challenge) 315; students' work will vary.

## Page 34, Money &amp; Miles Per Hour

- 1 \$60.00  
 2 39 miles  
 3 (challenge) \$300.00

## Page 35, Fill the Frames

1	<div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 5px;"> <span>10</span><span>5</span> </div> <div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 5px;"> <div style="border: 1px solid black; padding: 2px;"><math>4 \times 10 = 40</math></div> <div style="border: 1px solid black; padding: 2px;"><math>4 \times 5 = 20</math></div> </div>	$40 + 20 = 60$	$4 \times 15 = 60$
2	<div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 5px;"> <span>10</span><span>7</span> </div> <div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 5px;"> <div style="border: 1px solid black; padding: 2px;"><math>3 \times 10 = 30</math></div> <div style="border: 1px solid black; padding: 2px;"><math>3 \times 7 = 21</math></div> </div>	$30 + 21 = 51$	$3 \times 17 = 51$
3	<div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 5px;"> <span>10</span><span>6</span> </div> <div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 5px;"> <div style="border: 1px solid black; padding: 2px;"><math>5 \times 10 = 50</math></div> <div style="border: 1px solid black; padding: 2px;"><math>5 \times 6 = 30</math></div> </div>	$50 + 30 = 80$	$5 \times 16 = 80$

## Page 36, Apricots &amp; Carrots

- 1 \$1.35  
 2 \$2.25  
 3 (challenge) 3 loads of laundry

## Page 37, Addition &amp; Multiplication Puzzles

1 a

			225
66	13	100	179
80	50	30	160
75	13	50	138
			166

2 a

			60
100	2	3	600
4	2	1,000	8,000
10	3	2	60
			400

3 a 2

- b 10  
 c 8  
 d 2  
 e 100

## Page 38, Candy &amp; Video Games

- 1 a Responses will vary. Example: *How much money did Joya spend in all?*  
 b \$2.24  
 2 a Responses will vary. Example: *How much money does Devante need?*  
 b \$139.00

## Page 39, Multiplication Puzzles

1

			60
3	5	5	75
7	2	3	42
6	2	6	72
			36





## Use after Unit Two, Session 21 (cont.)

## Page 39, Multiplication Puzzles (cont.)

2

			60
5	5	3	75
3	4	5	60
5	5	6	150
			120

3

			100
4	8	5	160
2	5	5	50
4	3	4	48
			80

4 (challenge)

			240
7	2	20	280
5	3	4	60
4	6	3	72
			63

5 (challenge)

			120
3	30	4	360
7	6	10	420
5	25	2	250
			36

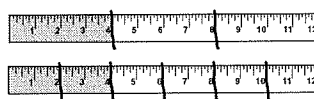
## Page 40, The Information You Need

- 1 Emilio has \$125. He wants to buy a new video game system that usually costs \$312 but is on sale for \$289. He wants to borrow money from his brother so that he can buy it while it is on sale. How much money will Emilio need to borrow to buy the game system while it is on sale?
- a Responses will vary. Example: *How much money does Emilio need to borrow?*
- b & c See above.
- d \$164.00
- 2 Marie had a \$5 bill, three \$1 bills, 2 quarters, and 3 pennies in her pocket. She bought a bottle of juice for 89¢ and an apple for 65¢. If she paid with two \$1 bills, how much change did she get back?
- a Responses will vary. Example: *How much change did Marie get?*
- b & c See above.
- d 46¢

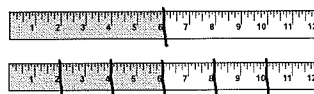
## Use after Unit Three, Session 10

## Page 41, Fractions of a Foot

- 1 a
- $\frac{1}{3}$
- ,
- $\frac{2}{6}$
- ,
- $\frac{4}{12}$



- b
- $\frac{1}{2}$
- ,
- $\frac{3}{6}$
- ,
- $\frac{6}{12}$



- c
- $\frac{1}{6}$
- ,
- $\frac{2}{12}$



- 2 a
- $\frac{4}{6}$
- ,
- $\frac{2}{3}$



- b
- $\frac{5}{6}$





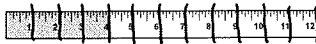
## Use after Unit Three, Session 10 (cont.)

## Page 41, Fractions of a Foot (cont.)

- 2 c
- $\frac{2}{2}, \frac{3}{3}, \frac{4}{4}, \frac{6}{6}, \frac{12}{12}$



- d
- $\frac{4}{12}, \frac{1}{3}$



- e
- $\frac{8}{12}, \frac{2}{3}$



## Page 42, More Fractions of a Foot

- 1 a 6  
b 3  
c 2  
d 4
- 2 a  $\frac{1}{3}$  should be circled (4 inches, 3 inches)  
b  $\frac{2}{3}$  should be circled (8 inches, 6 inches)  
c  $\frac{1}{2}$  and  $\frac{3}{6}$  should be circled (both are 6 inches)  
d  $\frac{3}{4}$  should be circled (8 inches, 9 inches)  
e  $\frac{2}{3}$  should be circled (3 inches, 8 inches)
- 3 a 1, 2, 3, 4, 6, 12  
b 1, 3, 5, 15  
c 1, 2, 3, 4, 6, 9, 12, 18, 36  
d 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60  
e (challenge) 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 120

## Page 43, Comparing Fractions on a Number Line

- 1 a  $\frac{2}{3}$  should be circled;  $\frac{2}{3} > \frac{2}{6}$   
b  $\frac{5}{6}$  should be circled;  $\frac{5}{6} > \frac{1}{3}$
- 2 a  $\frac{3}{4}$  should be circled;  $\frac{3}{4} > \frac{2}{3}$   
b  $\frac{5}{6}$  should be circled;  $\frac{5}{6} > \frac{2}{3}$   
c  $\frac{5}{6}$  should be circled;  $\frac{5}{6} > \frac{3}{4}$

## Page 44, Egg Carton Fractions

- 1 6, 4, 3, 2  
18, 8, 9, 10
- 2 a  $\frac{2}{6}$   
b  $\frac{1}{4}$   
c  $\frac{1}{2}$   
d  $\frac{5}{6}$   
e  $\frac{3}{4}$   
f  $\frac{4}{6}$
- 3 a  $\frac{4}{6} = \frac{2}{3}$   
b  $\frac{1}{3} > \frac{1}{4}$   
c  $\frac{3}{4} < \frac{5}{6}$

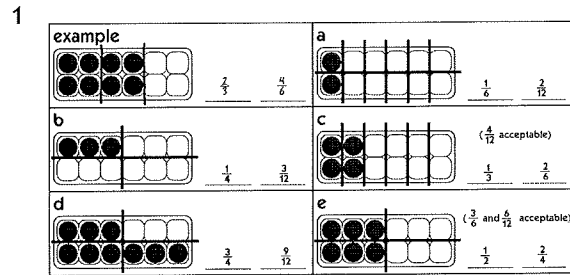
d  $\frac{1}{3} < \frac{3}{4}$

e  $\frac{1}{2} = \frac{2}{4}$

f  $\frac{2}{3} < \frac{3}{4}$

g  $\frac{2}{6} = \frac{1}{3}$

## Page 45, More Egg Carton Fractions



2

Egg Carton	Mixed Fraction	Improper Fraction
example 	$1\frac{2}{3}$	$\frac{5}{3}$
a 	$1\frac{2}{3}$ ( $1\frac{2}{3}$ or $1\frac{2}{3}$ acceptable)	$\frac{5}{3}$ ( $\frac{5}{3}$ or $\frac{10}{3}$ acceptable)
b 	$1\frac{2}{3}$ ( $1\frac{2}{3}$ or $1\frac{2}{3}$ acceptable)	$\frac{5}{3}$ ( $\frac{5}{3}$ or $\frac{10}{3}$ acceptable)

## Page 46, Comparing &amp; Ordering Fractions

- 1  $\frac{1}{4}, \frac{1}{3}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{3}{2}, \frac{5}{3}, \frac{7}{4}$
- 2  $\frac{1}{4}, \frac{1}{2}, 1\frac{3}{4}, 2\frac{1}{4}, 3$
- 3  $\frac{2}{3}, 2, 2\frac{1}{3}$
- 4 (challenge)  $\frac{8}{9}$ ; explanations will vary. Example:  $\frac{3}{4}$  is  $\frac{1}{4}$  less than 1.  $\frac{8}{9}$  is  $\frac{1}{9}$  less than 1.  $\frac{1}{4}$  is more than  $\frac{1}{9}$ , so  $\frac{3}{4}$  must be less than  $\frac{8}{9}$ .
- 5 (challenge)  $\frac{5}{4}$ ; explanations will vary. Example:  $\frac{5}{4}$  is the same as  $1\frac{1}{4}$ .  $\frac{10}{9}$  is the same as  $1\frac{1}{9}$ .  $\frac{1}{4} > \frac{1}{9}$ , so  $\frac{5}{4} > \frac{10}{9}$ .

## Page 47, Fractions &amp; Mixed Numbers on a Number Line

- 1 a  $\frac{3}{2}$   
b  $1\frac{2}{4}$  ( $1\frac{1}{2}$  is also acceptable)  
c  $1\frac{1}{2}$   
d  $3\frac{1}{4}$   
e  $\frac{5}{2}$   
f  $\frac{8}{4}$
- 2 (challenge)  $\frac{1}{2}$
- 3 (challenge)  $1\frac{1}{2}$
- 4 (challenge)  $8\frac{1}{2}$

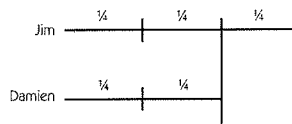


## Use after Unit Three, Session 10 (cont.)

### Page 48, Fraction Story Problems

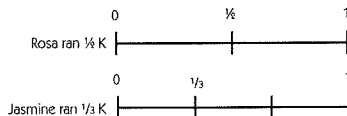
- 1 Jim's string is  $\frac{1}{4}$  of a foot longer than Damien's.

Student work will vary. Example:

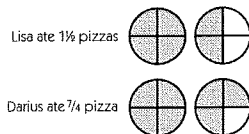


Jim's string =  $\frac{3}{4}$  of a foot  
 Damien's string =  $\frac{1}{2}$  of a foot  
 Jim's string is  $\frac{1}{4}$  of a foot longer than Damien's.

- 2 Rosa ran further than Jasmine. Student work will vary. Example:



- 3 (challenge) Darius ate  $\frac{1}{4}$  more of a pizza than Lisa did. Student work will vary. Example:



### Page 49, Clock Fractions

- 1 a 30  
 b 20  
 c 15  
 d 10
- 2 Note: Other shadings are possible.

Fractions	Picture on a Clock	How Many Minutes?
a $\frac{3}{4}$		45 minutes
b $\frac{2}{3}$		40 minutes
c $\frac{1}{6}$		10 minutes

### Page 50, Time & Fractions

- 1 a Mai spent more time doing homework.  
 (10 more minutes) Students' work will vary.  
 b 5:15; students' work will vary.  
 c 5:25; students' work will vary.
- 2 (challenge) It takes 10 more minutes to get to Ashley's aunt's house.

## Use after Unit Three, Session 20

### Page 51, Multiplication Tables

- 1 a 15, 6, 27, 9, 24, 18, 21, 12  
 b 20, 8, 36, 12, 32, 24, 28, 16  
 c 40, 16, 72, 24, 64, 48, 56, 32
- 2 8, 9, 4, 4  
 8, 8, 3, 3
- 3 (challenge) Answers will vary. Example: 376
- 4 (challenge) Answers will vary. Example:  $2 \times 376 = 752$

### Page 52, Fractions & Division

- 1 a  $\frac{1}{2}$   
 b  $\frac{1}{4}$   
 c  $\frac{1}{6}$
- 2 Each friend got  $\frac{1}{3}$  of the cookie.
- 3 Each friend got  $\frac{4}{3}$  or  $1\frac{1}{3}$  cookies.

### Page 53, More Multiplication Tables

- 1 32, 30, 49, 48, 36  
 7, 7, 5, 7, 9
- 2 a 50, 20, 90, 30, 80, 60, 70, 40  
 b 25, 10, 45, 15, 40, 30, 35, 20  
 c 45, 18, 81, 27, 72, 54, 63, 36
- 3 (challenge) 120, 60, 108, 180, 90, 162

### Page 54, Classroom Groups

- 1 Each student got 3 erasers, and there were 2 erasers left over.
- 2 a 27 students  
 b (challenge) 9 groups of 3



## Use after Unit Three, Session 20 (cont.)

### Page 55, Fractions of an Hour

Note: Other shadings are possible.

1	$\frac{1}{3}$		20 minutes
2	$\frac{3}{4}$		45 minutes
3	$\frac{2}{3}$		40 minutes
4	$\frac{1}{6}$		10 minutes

### Page 56, More Time & Distance Problems

- $\frac{1}{4}$  of an hour; 15 minutes
- (challenge) 9 feet

### Page 57, Fractions & Division Tables

- $\frac{3}{4} < \frac{5}{6}$
  - $\frac{2}{3} = \frac{4}{6}$
  - $\frac{5}{3} > \frac{5}{4}$
  - $\frac{2}{3} < \frac{3}{2}$
  - $\frac{1}{3} < \frac{3}{6}$
- 9, 2, 8, 3, 5, 6, 4
  - 6, 7, 5, 2, 9, 4, 8
  - 5, 4, 9, 6, 7, 3, 8

### Page 58, Sharing Problems

- \$9.50
- 8 shells each, with 2 shells left over
- (challenge) 120 blocks

### Page 59, Division Tables & Equivalent Fractions

- 8, 3, 4, 9, 7, 6, 5
  - 6, 9, 7, 8, 4, 5, 3
  - 9, 6, 5, 8, 7, 4, 3
- $\frac{1}{4}, \frac{3}{12}$
  - $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \frac{6}{12}$
  - $\frac{3}{4}, \frac{9}{12}$
  - $\frac{5}{6}, \frac{10}{12}$
  - $\frac{1}{3}, \frac{2}{6}, \frac{4}{12}$

### Page 60, Packages & Pizza

- 3 packages of muffins
- 10 packages of tennis balls (2 balls left)
- (challenge)  $2\frac{1}{4}$  pizzas

## Use after Unit Four, Session 10

### Page 61, Multiplying by 10, 100 & 1,000

- 50, 70, 400, 900  
7,000; 6,000; 90; 5,000; 300
- 80; 40; 700; 500  
3,000; 5,000; 1,000; 6  
5, 8, 100, 10  
(challenge) 1,000,000; 10; 100

### Page 62, Money & Minutes

- Brianna earns \$1,000 per month at her job. She used to make \$800 per month. If she works only for the months of June, July, and August, how much money will she make?
  - Responses will vary. Example: *How much money will Brianna make in 3 months?*
  - b & c** See above.
  - \$3,000
- Jonah is 18 years old. It takes him 50 minutes to ride his bike to work and 50 minutes to ride his bike home every day. If he worked 6 days last week, how many minutes did he spend riding his bike to and from work?
  - Responses will vary. Example: *How many minutes did Jonah spend riding his bike?*
  - b & c** See above.
  - 600 minutes
  - (challenge) 10 hours

### Page 63, Writing Improper Fractions as Mixed Numbers

- 35; 350; 350, 3,500  
12; 120; 120; 1,200  
56; 560; 560, 5,600
- 1,  $1\frac{1}{3}$ ,  $1\frac{2}{3}$   
1, 1,  $1\frac{6}{12}$  ( $1\frac{1}{2}$  also acceptable)  
1, 2,  $1\frac{2}{6}$ , ( $1\frac{1}{3}$  acceptable),  $1\frac{3}{6}$  ( $1\frac{1}{2}$  acceptable)  
(challenge)  $1\frac{1}{4}$ , 2,  $3\frac{3}{4}$ , 9



## Use after Unit Four, Session 10 (cont.)

## Page 64, Area Problems

- 1 2,400 square inches
- 2 4,000 square feet
- 3 (challenge) 6,100 square inches

## Page 65, Multiplication &amp; Division Puzzles

- 1 6, 3, 9, 8, 5  
2, 5, 4, 6, 9
- 2 a  $81 \div 9 = 9$   
 $9 \times 4 = 36$   
 $36 \div 6 = 6$   
 $6 \times 7 = 42$

start

81	6	36
6	9	4
7	42	9

end

- b  $1 \times 2 = 2$   
 $2 \times 9 = 18$   
 $18 \div 3 = 6$   
 $6 \div 3 = 2$

start      end

1	3	2
6	2	9
3	18	2

- 3 (challenge) 10, 4, 2, 3, 9, 90, 30, 20

## Page 66, Using Partial Products to Solve Multiplication Problems

1		$\begin{array}{r} 24 \\ \times 7 \\ \hline 7 \times 20 = 140 \\ 7 \times 4 = 28 \\ \hline 168 \end{array}$
2		$\begin{array}{r} 36 \\ \times 6 \\ \hline 6 \times 30 = 180 \\ 6 \times 6 = 36 \\ \hline 216 \end{array}$
3		$\begin{array}{r} 47 \\ \times 4 \\ \hline 4 \times 40 = 160 \\ 4 \times 7 = 28 \\ \hline 188 \end{array}$

## Page 67, Greater Than &amp; Less Than

1 Show a fraction that is greater than 1 and less than $1\frac{1}{2}$ .		Answers will vary. Example: $1\frac{1}{4}$
2 Show a fraction that is greater than $1\frac{1}{2}$ and less than 2.		Answers will vary. Example: $1\frac{2}{3}$ or $1\frac{1}{2}$
3 Show a fraction with 4 in the denominator that is greater than $1\frac{1}{2}$ and less than $1\frac{3}{4}$ .		$\frac{6}{4}$ or $1\frac{3}{4}$
4 Show a fraction with 3 in the denominator that is greater than $1\frac{1}{2}$ and less than $1\frac{3}{4}$ .		$\frac{4}{3}$ or $1\frac{1}{3}$  $\frac{3}{3}$ also acceptable

## Page 68, Using the Standard Multiplication Algorithm

- 1 a 258  
b 112  
c 236  
d 111  
e 252  
f 264  
g 340
- 2 a 411  
b 2,674  
c 2,910  
d 584  
e 1,392  
f 715  
g 2,030  
h (challenge) 6,215  
i (challenge) 14,124  
j (challenge) 17,300  
k (challenge) 31,302

## Page 69, Two Different Multiplication Methods

- 1 a 224  
b 235  
c 168  
d 2,247



## Use after Unit Four, Session 10 (cont.)

## Page 69, Two Different Multiplication Methods (cont.)

- 1 e 2,892  
f 777
- 2 Ramon bought 8 big cases of breakfast cereal. Each case held 12 boxes of cereal. Each box of cereal held 18 oz. of cereal. How many boxes of breakfast cereal did Ramon buy?
- a Responses will vary. Example: *How many boxes of cereal did Ramon get?*
- b & c See above.
- d 96 boxes of cereal

## Page 70, Kylie's Babysitting Money

- 1 Kylie earns \$8 an hour babysitting. She babysat 21 hours last month. This month, she babysat 17 hours more than last month. How much more money did she earn this month?
- a Responses will vary. Example: *How much more money did Kylie earn this month than she did last month?*
- b & c See above.
- d \$136
- 2 (challenge) 32 hours; student work will vary.

## Use after Unit Four, Session 21

## Page 71, More Partial Products

1	$\begin{array}{r} 36 \\ \times 14 \\ \hline 108 \\ 504 \\ \hline 504 \end{array}$	$\begin{array}{r} 36 \\ \times 14 \\ \hline 10 \times 30 = 300 \\ 10 \times 6 = 60 \\ 4 \times 30 = 120 \\ 4 \times 6 = 24 \\ \hline 504 \end{array}$
2	$\begin{array}{r} 114 \\ \times 13 \\ \hline 342 \\ 1380 \\ \hline 1482 \end{array}$	$\begin{array}{r} 114 \\ \times 13 \\ \hline 100 \times 10 = 1,000 \\ 10 \times 10 = 100 \\ 10 \times 4 = 40 \\ 3 \times 100 = 300 \\ 3 \times 10 = 30 \\ 3 \times 4 = 12 \\ \hline 1,482 \end{array}$

## Page 72, Toothpicks &amp; Leaves

- 1 Last year, there were 26 students in Mrs. Coleman's class. This year, there are 28 students in her class. They are doing an art project, and every student needs 17 toothpicks. How many toothpicks will they need altogether?
- a Responses will vary. Example: *How many toothpicks do the kids need for the project?*
- b & c See above.
- d 476 toothpicks
- 2 Leo is 11 years old. His neighbors pay him \$12 to rake the leaves in their yards. He raked 23 yards in October and 15 yards in November. How much money did he earn in those two months?
- a Responses will vary. Example: *How much money did Leo earn in 2 months?*
- b & c See above.
- d \$456

## Page 73, Reasonable Estimates &amp; Partial Products

- 1 a 400 (first bubble)  
b 600 (first bubble)  
c 6,000 (third bubble)  
d 3,000 (third bubble)
- 2 a 1,242  
b 1,548  
c 1,943  
d 2,183  
e 2,632

## Page 74, Multiplication Story Problems

- 1 728 desks
- 2 1,750 sit-ups
- 3 (challenge) 672 seats

## Page 75, Multiplication Round &amp; Check

- 1 200; 300; 600; 400; 500; 2,000; 3,000; 6,000
- 2 a Estimate: 400; Solution: 369  
b Estimate: 300; Solution: 288  
c Estimate: 200; Solution: 216  
d Estimate: 600; Solution: 504  
e Estimate: 600; Solution: 726  
f Estimate: 2,000; Solution: 1,854  
g (challenge) Estimate: 3,600; Solution: 3,936



## Use after Unit Four, Session 21 (cont.)

### Page 76, Cherry Tomatoes & Cafeteria Tables

- 1 Farmer Sara drives ~~32 miles each week~~ to take baskets of vegetables to her customers. She put 16 cherry tomatoes into each basket. She filled 23 baskets. How many cherry tomatoes did she use altogether?
  - a Responses will vary. Example: *How many cherry tomatoes did it take to fill all the baskets?*
  - b & c See above.
  - d 368 cherry tomatoes
- 2 There are 24 tables in the cafeteria, and each table seats 17 students. ~~The cafeteria serves lunch from 11:45 am until 12:25 pm.~~ How many students can sit in the cafeteria at a time?
  - a Responses will vary. Example: *How many kids can sit in the cafeteria at the same time?*
  - b & c See above.
  - d 408 students

### Page 77, Using the Standard Algorithm & Partial Products to Multiply

- 1 900; 1,200; 1,600; 4,000; 6,000; 8,000
- 2
  - a 1,044
  - b 1,634
  - c 4,092
  - d 7,245

### Page 78, Raffle Tickets & Exercise Minutes

- 1 The middle school was giving away raffle tickets at Back to School Night. There were 48 classrooms altogether and ~~896 students at the school.~~ Each classroom got a bundle of 108 tickets to give away. How many tickets did the classrooms get altogether?
  - a Responses will vary. Example: *How many tickets were there to give away in all?*
  - b & c See above.
  - d 5,184 tickets
- 2 Deja exercises four days a week at the gym. ~~The gym is 7 blocks away from her house.~~ Each time, she spends 45 minutes exercising. If she does this for 13 weeks, how much time will she spend exercising altogether?
  - a Responses will vary. Example: *How many minutes will Deja spend exercising in 13 weeks?*
  - b & c See above.

- d 2,340 minutes
- e (challenge) 39 hours and 0 minutes

### Page 79, Using the Standard Algorithm to Multiply Large Numbers

- 1 4,800; 5,600; 6,400; 6,000; 12,000; 18,000
- 2
  - a 5,928
  - b 5,760
  - c 4,602
  - d 7,631
  - e 15,652

### Page 80, Bread & Paper

- 1 480 loaves of bread
- 2
  - a (challenge)  $12" \times 8"$  or  $4" \times 24"$
  - b (challenge) 96 square inches

## Use after Unit Five, Session 10

### Page 81, More Fractions & Division

- 1
  - a  $\frac{1}{4}$
  - b  $\frac{3}{4}$
  - c  $\frac{1}{8}$
  - d  $\frac{3}{8}$
  - e  $\frac{5}{8}$
  - f  $\frac{1}{3}$
  - g  $\frac{2}{3}$
- 2 12, 6, 3, 8  
120, 60, 30, 80
- 3
  - a 8
  - b 3
  - c 6
  - d 80
  - e 120
  - f 30
  - g 60
  - h (challenge) 18
  - i (challenge) 160

### Page 82, Favorite Fruit Graph

- 1 Watermelon
- 2 Peaches
- 3 Apples and strawberries
- 4 120 students
- 5 60 students
- 6 30 students



## Use after Unit Five, Session 10 (cont.)

## Page 83, Spinner, Tile &amp; Marble Fractions

- 1 a  $\frac{1}{2}$   
 b  $\frac{1}{4}$   
 c  $\frac{1}{3}$   
 d  $\frac{1}{8}$
- 2 a  $\frac{2}{8}$  ( $\frac{1}{4}$  acceptable also)  
 b  $\frac{2}{6}$  ( $\frac{1}{3}$  acceptable also)  
 c  $\frac{3}{6}$  ( $\frac{1}{2}$  acceptable also)  
 d  $\frac{6}{8}$  ( $\frac{3}{4}$  acceptable also)
- 3 a  $\frac{3}{9}$  ( $\frac{1}{3}$  acceptable also)  
 b  $\frac{1}{6}$   
 c  $\frac{3}{10}$

## Page 84, Probability Experiments

- 1  $\frac{2}{8}$  or  $\frac{1}{4}$  (Other acceptable answers include: 2 out of 8 chances, 1 out of 4 chances.)
- 2 Chris has a better chance of getting a gray tile from the large bowl than the small bowl. Explanations will vary. Example: *Half the tiles in the large bowl of 240 are gray because 120 is half of 240. Only  $\frac{2}{8}$  or  $\frac{1}{4}$  of the tiles in the small bowl are gray. So his chances are only 2 out of 8, which is less than 1 out of 2.*
- 3  $\frac{2}{10}$  or  $\frac{1}{5}$  (Other acceptable answers include: 2 out of 10 chances, 1 out of 5 chances.)
- 4 a (challenge) 4 would need to be black. Explanations will vary. Example: *20 is twice as much as 10. If you want the chances to stay the same, you have to double the number of black marbles.*  
 $2 \times 2 = 4$ .
- b (challenge) 20 would need to be black. Explanations will vary. Example: *2 is  $\frac{1}{5}$  of 10. 20 is  $\frac{1}{5}$  of 100. The chances have to be 2 out of 10, or  $\frac{1}{5}$ .*

## Page 85, Eating Our Vegetables

- 1 a 2 students  
 b 16 students  
 c 13 students  
 d Tuesday, Wednesday, and Friday  
 e (challenge) Friday; explanations will vary. Example:  $\frac{1}{3}$  of 24 is 8, so  $\frac{2}{3}$  of 24 would be 16. Sixteen kids ate vegetables on Friday.

- 2 100 students; explanations will vary. Example:

$$\frac{1}{4} + \frac{1}{3} = \frac{7}{12}$$

$$\frac{12}{12} - \frac{7}{12} = \frac{5}{12}$$

$$240 \div 12 = 20$$

$$20 \times 5 = 100$$

## Page 86, Fair Spinners

- 1 a Choice 3, the half and half spinner  
 b Yes; explanations will vary. Example: *4 parts of the spinner are labeled A and 4 parts are labeled B. The parts are the same size, so it's fair.*
- 2 a Responses will vary. Example: *If you split the spinner into 3 equal parts, each boy has an equal chance.*



- 2 b Responses will vary. Example: *Split the spinner into 6 equal parts, and give each color 2 parts. That way, each boy has a 2 out of 6 chance of landing on his color.*



## Page 87, Multiplication &amp; Division Practice

- 1 a 4,760  
 b 11,661  
 c 9,248  
 d 11,392  
 e 17,347  
 f 11,175  
 g 25,929
- 2 8, 9, 8  
 7, 8, 7  
 8, 3, 6
- 3 (challenge) 27, 14, 16

## Page 88, Area &amp; Perimeter, Time &amp; Money

- 1 Area = 2,800 square inches  
 Perimeter = 240 inches
- 2 a 10 hours  
 b \$120

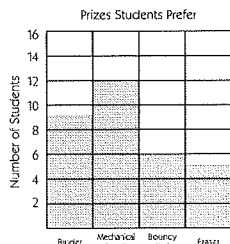




## Use after Unit Five, Session 10 (cont.)

## Page 89, Prizes for Student Helpers

1



- 2 a \$24.95  
b \$40.00  
c \$6.50  
d \$1.25
- 3 \$72.70; students' work will vary.

## Page 90, Probability Experiments with Tile &amp; Marbles

- 1 a  $\frac{1}{8}$  (Other acceptable responses include  $\frac{1}{2}$ , 1 out of 2, half, 4 out of 8.)  
b 120; explanations will vary. Example: 4 out of 8 is half, so to keep the probability the same, half the tiles have to be white. Half of 240 is 120.

2

Problem	Color in the Marbles	Number of Black Marbles
a Ling wants to make a collection of marbles where the chance of pulling out a black marble is $\frac{1}{3}$ . Color in some of the 36 marbles to show how many should be black.		12
b Ling wants to change the collection of marbles so that it is twice as likely as it was with the collection above that she will pull out a black marble. Color in some of the 36 marbles to show how many should be black.		24
c Ling wants to change the first collection of marbles so that the chances of pulling out a black marble are half what they were with the first collection. Color in some of the 36 marbles to show how many should be black.		6

## Use after Unit Five, Session 18

## Page 91, Calendar Problems

- 1 Answers and explanations will vary. Example: No. If you check the calendar, it's 7 weeks and 1 day until Hannah's birthday.
- 2 Thursday, March 5th
- 3 Sunday, March 22nd
- 4 February 26 (third bubble)
- 5 (challenge) Five Sundays

## Page 92, Dog Bone Graph

- 1 10 bones  
2 5 bones  
3 Friday  
4 35 bones  
5 170 bones  
6 (challenge) 85 bones

## Page 93, Division &amp; Elapsed Time

- 1 4, 7, 9, 4  
9, 8, 9, 4  
7, 6, 8, 9
- 2 5:15
- 3 4:15
- 4 1 hour and 10 minutes
- 5 55 minutes

## Page 94, Estimating to Decide if Your Answer Is Reasonable

- 1 a More than 200 dictionaries, but less than 400 (Choice 3)  
b 276 dictionaries  
c Answers and explanations will vary. Example: Yes, because  $20 \times 12 = 240$ , and  $23 \times 12$  is close to  $20 \times 12$ .
- 2 28,000; 21,000; 3,600; 16,000,000; 420,000

## Page 95, Multi-Digit Multiplication Practice

- 1 2,100; 2,800; 3,500; 21,000; 28,000
- 2 a 3,796  
b 3,264  
c 2,412  
d 19,684  
e 27,560

## Page 96, Darryl's Present

- 1 a Estimates will vary. Example: 5 hours  
b Estimates will vary. Example: 10 hours
- 2 7 hours
- 3 Answers will vary. Example: Yes, because he already made about \$100 by working 8 hours. Working 7 hours seems like a good answer because he only needs a little more than \$80 more to buy the present.



## ANSWER KEY

## Use after Unit Five, Session 18 (cont.)

## Page 97, Enough Information to Solve the Problem?

Problem	Is there enough information to solve the problem?	If there is not enough information, what information is missing?
1 Cody wants to buy a new pair of shoes that cost \$65. His neighbors pay him to mow their lawns. If he earns \$10 for each lawn, will he have enough money to buy the shoes this week?	No	Answers will vary. Example: How many lawns is he going to mow this week?
2 Jenna went to the store with a \$10 bill. She bought 3 apples that each cost 65¢ and a carton of milk that cost \$1.85. How much change will she get back?	Yes	N/A
3 There are 6 clusters of desks and 22 students in Mr. Fletcher's classroom. How many empty seats are there in his classroom?	No	Answers will vary. Example: How many desks are in each cluster?
4 Kiyoshi is making bags of art supplies to give away as prizes on Back to School Night. If he puts 3 erasers in each bag, how many bags can he fill?	No	Answers will vary. Example: How many erasers did he start with?
5 Salvador is making batches of cookies. He baked 6 batches of 8 cookies and a final batch of 4 cookies. How many cookies did he bake altogether?	Yes	N/A

## Page 98, Choosing a Strategy

- Answers will vary, but draw a picture makes the best sense.
  - Explanations will vary depending on the strategy selected. Example: *I chose "draw a picture" because the problem is about shapes. It seems easiest to solve the problem with a picture.*
  - Width = 5 cm; length = 7 cm
  - Responses will vary.

## Page 99, Find the Missing Information

- The bread cost \$2. (second bubble)
  - \$3.70
- Lisa's room is 9 ft. by 11 ft. (second bubble)
  - Lisa will need 25 packages of carpet squares, even though there will be one square left over. It will cost her \$125.

## Page 100, Family Math Night

- Estimates will vary. Example: 6:15
  - 6:05
  - Answers will vary. Example: *Yes, because 1½ hours plus 20 minutes is about 2 hours, and 45 minutes more is almost 3 hours. If it took 3 hours, they would finish at 6:30, but it was a little less than 3 hours.*

## Use after Unit Six, Session 10

## Page 101, Fractions &amp; Mixed Numbers

- $\frac{1}{4}, \frac{2}{8}$
  - $\frac{3}{4}, \frac{6}{8}$
  - $\frac{1}{3}, \frac{2}{6}$
  - $\frac{2}{3}, \frac{4}{6}$
  - $\frac{2}{2}, \frac{4}{4}$
- $\frac{9}{4}, 2\frac{1}{4}$  ( $\frac{18}{8}, 2\frac{2}{8}$  also acceptable.)
  - $\frac{7}{3}, 2\frac{1}{3}$  ( $\frac{14}{6}, 2\frac{2}{6}$  also acceptable.)
  - $\frac{5}{3}, 1\frac{2}{3}$  ( $\frac{10}{6}, 1\frac{4}{6}$  also acceptable.)
- $4\frac{1}{2}$
  - $2\frac{1}{4}$
  - $3\frac{3}{4}$  ( $3\frac{1}{2}$  also acceptable.)
  - $\frac{7}{2}$
  - $\frac{11}{4}$
  - (challenge)  $20\frac{2}{3}$
  - (challenge)  $91\frac{1}{3}$

## Page 102, Pizza Problems

- Lucy ate  $\frac{1}{8}$  of a pizza more.
- The Suarez family ate  $\frac{5}{8}$  of a pizza more.
- (challenge)  $\frac{82}{8}$  is greater than  $\frac{37}{4}$ . Explanations will vary.

## Page 103, Using Fractions on a Number Line to Solve Problems

- Jade
  - Lester's
  - Table B
- $\frac{1}{12}, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, \frac{7}{8}, \frac{7}{6}$
- $\frac{3}{6} < \frac{3}{4}$
  - $\frac{5}{6} > \frac{3}{4}$
  - $\frac{5}{6} > \frac{2}{3}$
  - $\frac{5}{4} > \frac{5}{6}$
  - $\frac{5}{4} < \frac{4}{3}$
  - $\frac{11}{6} > \frac{5}{3}$
  - (challenge)  $\frac{10}{9} > \frac{101}{100}$

## Page 104, Time Conversions

- 60
  - 60
  - 24
  - 7
  - 365
  - 52
- 3,600 seconds



## Use after Unit Six, Session 10 (cont.)

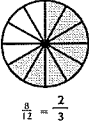
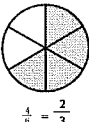
## Page 104, Time Conversions (cont.)

- 3 1,440 minutes  
 4 36 hours  
 5 4,380 days (not counting leap years)  
 6 (challenge) 28,470 days (not counting leap years)

## Page 105, Showing Fractions in Simplest Form

- 1 a 1, 2, 4  
 b 1, 2, 4, 8  
 c 1, 3  
 d 1, 2, 3, 6  
 e 1, 2, 3, 4, 6, 12

2

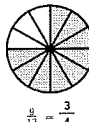
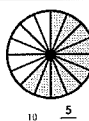
a	$\frac{8}{12}$	1, 2, 4, 8	1, 2, 3, 4, 6, 12	4	$\frac{8}{12} \div \frac{4}{4} = \frac{2}{3}$	
b	$\frac{4}{6}$	1, 2, 4	1, 2, 3, 6	2	$\frac{4}{6} \div \frac{2}{2} = \frac{2}{3}$	

## Page 106, Weight Conversions

- 1 a 16  
 b 2,000  
 2 a 240 ounces  
 b 184 ounces  
 c 2,800 ounces  
 d 10,000 pounds  
 e (challenge) 160,000 ounces  
 f (challenge) 150 tons

## Page 107, Simplifying Fractions

1

a	$\frac{9}{12}$	1, 3, 9	1, 2, 3, 4, 6, 12	3	$\frac{9}{12} \div \frac{3}{3} = \frac{3}{4}$	
b	$\frac{10}{16}$	1, 2, 5, 10	1, 2, 4, 8, 16	2	$\frac{10}{16} \div \frac{2}{2} = \frac{5}{8}$	

- 2 a  $\frac{9}{15} \div \frac{3}{3} = \frac{3}{5}$   
 $15 \div 3 = 5$   
 b  $\frac{6}{16} \div \frac{2}{2} = \frac{3}{8}$   
 $16 \div 2 = 8$

$$c \quad \frac{8}{12} \div \frac{4}{4} = \frac{2}{3}$$

$$12 \div 4 = 3$$

## Page 108, Capacity Conversions

- 1 a 8  
 b 2  
 c 2  
 d 4  
 e 4  
 f 8  
 2 a 16 cups  
 b 128 ounces  
 c 600 quarts  
 d 19,200 ounces

## Page 109, Fraction Practice

- 1  $10\frac{1}{4}$ ,  $10\frac{3}{4}$ ,  $11\frac{1}{3}$ ,  $11\frac{2}{3}$   
 2 a 11 miles  
 b No; explanations will vary. Example:  $11\frac{1}{4}$  miles is closer to 11 than 12.  
 c Frank  
 3 1, 10, 11,  
 1, 10, 11,  $11\frac{2}{3}$ ,  
 $11\frac{1}{2}$ ,  $10\frac{1}{3}$ ,  $10\frac{2}{4}$  or  $10\frac{1}{2}$ ,  $9\frac{2}{3}$   
 4 a  $\frac{6}{21} \div \frac{3}{3} = \frac{2}{7}$   
 $21 \div 3 = 7$   
 b  $\frac{8}{36} \div \frac{4}{4} = \frac{2}{9}$   
 $36 \div 4 = 9$

## Page 110, Length Conversions

- 1 a 12  
 b 3  
 c 36  
 d 5,280  
 2 a 144 inches  
 b 150 feet  
 c 1,800 inches  
 d 42,240 feet  
 e (challenge) Estimates will vary.  
 Example: 1,750 yards  
 f (challenge) 1,760 yards

## Use after Unit Six, Session 22

## Page 111, Decimals &amp; Fractions

- 1 a Tenths  
 b Ones



## Use after Unit Six, Session 22 (cont.)

## Page 111, Decimals &amp; Fractions (cont.)

- 1 c Hundreds  
d Hundredths  
e Tenths
- 2 a 6.07  
b 265.8
- 3 a 0.7 or .7  
b 3.05  
c 0.04 or .04  
d 4.38  
e 1.09  
f 1.9
- 4 a  $1.12 < 1.2$   
b  $3.5 > 3.48$   
c  $23.81 < 23.85$   
d  $4.50 = 4.5$   
e  $3.06 < 3.65$

## Page 112, Running Problems

- 1 a 9.56 seconds  
b Less than twice as long; explanations will vary.  
Example: *If it had taken him twice as long to run 200 meters, his time would have been  $9.86 + 9.86$ , which equals 19.72. 19.42 is less than 19.72*
- 2 Steven is 0.12 seconds away from tying the world record. Students' work will vary.
- 3 It took her 0.75 seconds longer. Students' work will vary.

## Page 113, Using Pictures to Compare Decimals &amp; Fractions

Note: Other shadings are possible.

1 0.46		$0.46 > \frac{1}{4}$ $0.46 < \frac{1}{2}$ $0.46 < \frac{3}{4}$
2 0.52		$0.52 > \frac{1}{4}$ $0.52 > \frac{1}{2}$ $0.52 < \frac{5}{4}$
3 0.87		$0.87 > \frac{1}{4}$ $0.87 > \frac{1}{2}$ $0.87 > \frac{3}{4}$

## Page 114, From Home to School &amp; Back

- 1 a \$0.15  
b \$3.30
- 2 a 3.4 miles  
b (challenge) 17 miles
- 3 (challenge) 2.95 miles

## Page 115, Ordering Decimals &amp; Fractions

- 1 a 0.5  
b 0.50  
c 0.75  
d 0.25  
e 0.5 or 0.50  
f 0.75  
g 1 or 1.0
- 2 a

less than $\frac{1}{4}$	between $\frac{1}{4}$ and $\frac{1}{2}$	between $\frac{1}{2}$ and $\frac{3}{4}$	greater than $\frac{3}{4}$
0.06 0.15	0.28 0.3	0.6 0.71	0.92 0.8

- b 0.06, 0.15, 0.28, 0.3, 0.6, 0.71, 0.8, 0.92
- 3 0.08, 0.23,  $\frac{1}{4}$ , 0.3,  $\frac{3}{4}$ , 0.78,  $\frac{9}{10}$
- 4 0.02,  $\frac{1}{3}$ ,  $\frac{5}{4}$ ,  $1\frac{1}{2}$ , 2.25,  $\frac{10}{4}$ , 3.6

## Page 116, Pencils &amp; Paint

- 1 No (Keiko needs \$2.95 more to buy 5 boxes of pencils)
- 2 (challenge) \$595.20 (\$620 if they only buy gallons)

## Page 117, Rounding Decimals &amp; Fractions to the Nearest Whole Number

- 1 0.25,  $\frac{3}{4}$ , 1.05,  $\frac{9}{5}$
- 2 0.75,  $\frac{7}{5}$ ,  $5\frac{7}{10}$ , 7.05
- 3 a 0  
b 1  
c 2  
d 1  
e 7  
f 6  
g 7  
h 8
- 4 a (challenge) 38  
b (challenge) 74  
c (challenge) 27  
d (challenge) 401



## Use after Unit Six, Session 22 (cont.)

## Page 118, Decimal &amp; Fraction Story Problems

- 1 Yes; explanations will vary. Example:  $2.4 = 2\frac{4}{10}$ .  
 $\frac{4}{10} > \frac{1}{4}$ , so 2.4 pounds will be more than enough.
- 2 No; explanations will vary. Example:  $3\frac{3}{4} = 3.75$ ,  
 and  $.75 > .6$ , so 3.6 pounds is not enough.
- 3 Yes; explanations will vary. Example:  $13\frac{1}{2} = 13.5$ .  
 $13.8 > 13.5$ , so they can stop now.

## Page 119, Comparing Decimals &amp; Fractions

1

a	$0.12 = \frac{12}{100}$	$\frac{12}{100}$ and $\frac{20}{100}$	0.12 and 0.20	$0.12 < \frac{2}{10}$
b	$\frac{56}{100} = 0.56$	$\frac{56}{100}$ and $\frac{50}{100}$	0.56 and 0.50	$\frac{56}{100} > 0.5$
c	$0.04 = \frac{4}{100}$	$\frac{4}{100}$ and $\frac{9}{100}$	0.04 and 0.09	$0.04 < \frac{9}{100}$
d	$\frac{8}{100} = 0.08$	$\frac{8}{100}$ and $\frac{30}{100}$	0.08 and 0.30	$\frac{8}{100} < 0.3$

2

a	$\frac{2}{3} < 0.75$	b	$0.5 = \frac{50}{100}$	c	$0.7 > \frac{1}{2}$
d	$\frac{8}{10} > 0.08$	e	$\frac{8}{100} < 0.6$	f	$0.5 > \frac{3}{10}$
g	$4.3 < \frac{9}{2}$	h	$3.05 > \frac{6}{2}$	i	$\frac{5}{1} = 1.25$
j	$2.50 = 2\frac{1}{2}$	k	$\frac{10}{5} < 2\frac{1}{4}$	l	$\frac{12}{4} > 2.75$

3 (challenge)

a	$3.5 > \frac{305}{100}$	b	$\frac{46}{100} > 0.3$	c	$0.29 < \frac{29}{10}$	d	$\frac{130}{200} > 0.3$
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## Page 120, More Decimal &amp; Fraction Story Problems

- 1 Yes; explanations will vary.  
 Example:  $1.15 + 1.56 = 2.71$ . 2.71 is more than  $2\frac{1}{2}$  pounds, so Elisa will have enough.
- 2 Ming; explanations will vary.  
 Example: Ming ran 8.6 miles. Enrico ran  $8\frac{1}{2}$  miles.  
 $8.6 > 8\frac{1}{2}$  so Ming ran farther.

## Use after Unit Seven, Session 10

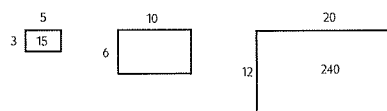
## Page 121, Area Problems

- 1 105 square inches, students' work will vary.
- 2 210 square inches, students' work will vary.
- 3 700 square inches, students' work will vary.
- 4 (challenge) 294 square inches, students' work will vary.

## Page 122, Thinking about Area

- 1 a 9  
 b 18  
 c 36  
 d 72  
 e Responses will vary. Example: The area is twice as big.

- 2 a 128  
 b 64  
 c 32  
 d 16  
 e Responses will vary. Example: The area is cut in half each time.
- 3 (challenge) Responses will vary. Example: When you double the length of both dimensions, the area is 4 times as big from one to the next.



## Page 123, Solving Equations

- 1 a 12  
 b 11  
 c 8  
 d 42  
 e 48  
 f 86
- 2 a 8  
 b 20  
 c 7  
 d 100  
 e 5  
 f 14  
 g 7  
 h 7
- 3 (challenge) Responses will vary. Examples:  
 a  $a + 10 = 15$   
 b  $100 = 20 \times a$   
 c  $50 \div a = 10$   
 d  $3 = a - 2$



## Use after Unit Seven, Session 10 (cont.)

## Page 124, Writing &amp; Solving Equations

1 Alana had 25 seashells. She gave some to her sister. Now she has 12 seashells. How many seashells did she give her sister?	$25 - \square = 12$	$25 - s = 12$	She gave her sister 13 shells. $s = 13$
2 George put apples into bags to sell at the farmers market. He put 5 apples into each bag. He had 45 apples altogether. How many bags did he fill?	$45 \div 5 = \square$	$45 \div 5 = a$	He put 9 apples in each bag. $a = 9$
3 Mr. James had 16 bookmarks to give to the 4 students in his reading group. How many bookmarks did each student get if they all got the same number of bookmarks?	$16 \div 4 = \square$	$16 \div 4 = b$	Each kid got 4 bookmarks. $b = 4$
4 Serafina had 30 stickers. She gave the same number of stickers to each of her 3 friends. Now she has 18 stickers left. How many stickers did she give to each friend?	$30 - (3 \times \square) = 18$	$30 - (3 \times s) = 18$	She gave 4 to each friend. $s = 4$

## Page 125, What's the Rule

1	a Pattern 3, 6, 12, <u>24</u> , <u>48</u> , <u>96</u>
	b Rule <b>Double the number.</b>
2	a Pattern 16, 8, 4, <u>2</u> , <u>1</u> , <u>1/2</u>
	b Rule <b>Divide the number in half.</b>
3	a Pattern 6.13, 7.26, 8.39, <u>9.52</u> , <u>10.65</u> , <u>11.78</u>
	b Rule <b>Add 1.13 each time</b>
4	a Pattern $2\frac{1}{8}$ , $3\frac{1}{4}$ , $4\frac{3}{8}$ , $5\frac{1}{2}$ , <u><math>6\frac{5}{8}</math></u> , <u><math>7\frac{3}{4}</math></u> , <u><math>8\frac{7}{8}</math></u>
	b Rule <b>Add <math>1\frac{1}{8}</math> each time.</b>
5	a Pattern $\frac{16}{9}$ , $\frac{15}{9}$ , $1\frac{1}{3}$ , <u>1</u> , <u><math>\frac{2}{3}</math> (<math>\frac{4}{6})</math></u> , <u><math>\frac{1}{3}</math> (<math>\frac{2}{6})</math></u> , <u>0</u>
	b Rule <b>Subtract <math>\frac{1}{9}</math> or <math>\frac{1}{3}</math> each time.</b>

## Page 126, Number Patterns &amp; Divisibility

- 14, 16, 18, 20, 22, 24
  - 30, 35, 40, 45, 50, 55
  - 50, 60, 70, 80, 90, 100
- Responses will vary. Examples:
  - All the count-by-2 numbers are even. They all end in multiples of 2.
  - All the count-by-5 numbers end in 0 or 5.
  - All the count-by-10 numbers end in 0. They are also all even.
- 40: yes, yes, yes
  - 75: no, yes, no
  - 37: no, no, no
  - 110: yes, yes, yes
  - 364: yes, no, no
  - 930: yes, yes, yes

- 361: no, no, no
- 576: yes, no, no
- 785: no, yes, no

## Page 127, Ounces, Cups, Pints, Quarts &amp; Gallons

- 8
  - 2
  - 2
  - 4
  - 4
  - 8
- 640 ounces
- (challenge) 7 pints (112 ounces, 14 cups, or  $3\frac{1}{2}$  quarts are also acceptable responses.)

## Page 128, Find or Write the Matching Equation

1

a Nina had 2 cats. They had kittens and now Nina has 8 cats. How many kittens did they have?
b Tim had 8 kites. He gave them to his friends. Each friend got 2 kites. How many friends did Tim give kites to?
c Kaylee had 8 keys on her keychain. She got rid of some of them, and now she has 2 keys left. How many keys did she get rid of?
d Takumi was tying knots. He tied the same number of knots on 2 different pieces of string. When he was done, he had tied 8 knots. How many knots did he tie on each piece of string?

$8 + k = 2$

$8 - k = 2$

$2 \times k = 8$

$2 + k = 8$

- The letter students use to represent the unknown amount may vary. Examples:
  - $30 \div 5 = r$
  - $9 \div 3 = b$
  - $\$45 - m > \$30$

## Page 129, Thinking about Number Patterns

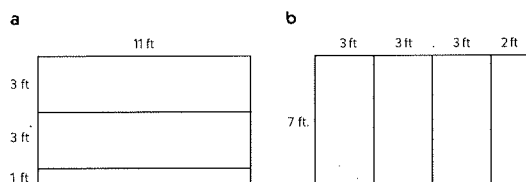
- 42, 44, 46, 48, 50, 52
  - 60, 65, 70, 75, 80, 85
  - 90, 100, 110, 120, 130, 140
- Responses will vary. Examples:
  - It must be even.
  - It must be a multiple of 10.
  - It must be divisible by 2.
- (challenge) Responses and explanations will vary. Example: I agree with Nia because  $2 \times 3 = 6$ , so any multiple of 6 must also be a multiple of both 2 and 3. If you look at the first few multiples of 6, for example (6, 12, 18, 24, 30, 36, and 42), they're all even, so they have to be multiples of 2. You can divide them all by 3, so they're all multiples of 3 as well.



## Use after Unit Seven, Session 10 (cont.)

### Page 130, The Paper Problem

- 1 Drawings will vary. Examples:



- 2 (challenge) Responses will vary. Example: *The first way shown above wastes a  $2' \times 11'$  piece of paper or 22 square feet. The second way shown above wastes a  $2' \times 7'$  piece of paper, or 14 square feet. The second way wastes less paper.*

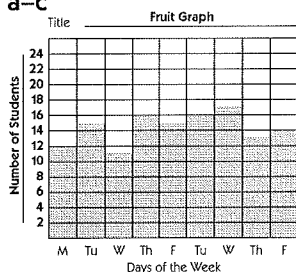
## Use after Unit Eight, Session 10

### Page 131, The Vegetable Eating Contest

- 2 students
- 15 students
- Friday
- Tuesday, Wednesday, Thursday
- Responses will vary. Example: *Room 108 did a better job because there was only 1 day more kids from that class ate less vegetables. On all the other days, they ate more or the same amount. For the whole week, the kids from 106 only ate vegetables 61 times, and the kids from 108 ate vegetables 71 times.*

### Page 132, Room 108's Fruit Graph

- 1 a-c



- 11, 12, 13, 14, 15, 15, 16, 16, 17
  - $17 - 11 = 6$
  - There are 2 modes: 15 and 16
  - 15

### Page 133, Two Different Kinds of Data

- Numerical; A
- Categorical; D
- Categorical; B
- Numerical; C

### Page 134, How Tall Are We?

- 50, 51, 52, 52, 52, 53, 53, 54, 54, 57, 60
- $60 - 50 = 10$  inches
  - Responses will vary. Example: *The tallest friend was 10" taller than the shortest friend.*
- 52 inches
  - Responses will vary. Example: *The height that was most common is the group was 52".*
- 53 inches
  - Responses will vary. Example: *Half of the friends were 53" or taller, and half were 53" or shorter.*

### Page 135, Estimate or Exact Measurement?

- E
  - M
  - E
  - M
  - M
- Responses will vary.
- Responses will vary.

### Page 136, Multiplication Review

- 15, 6, 27, 9, 24, 18, 21, 12
  - 35, 14, 63, 21, 56, 42, 49, 28
  - 45, 18, 81, 27, 72, 54, 63, 36
- 8, 7, 5, 8, 6
- 9, 3, 7, 6
- 282; 2,002; 1,417; 40,932

### Page 137, Decimal & Fraction Riddles

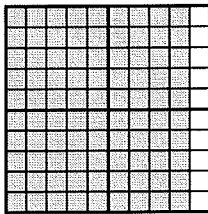
- 0.25
  - 0.75
  - 0.7
  - 0.02
  - 0.30
  - 0.53
  - 2.06
  - 3.25



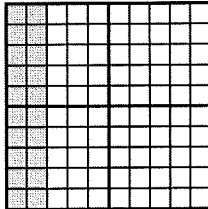
## Use after Unit Eight, Session 10 (cont.)

## Page 137, Decimal &amp; Fraction Riddles (cont.)

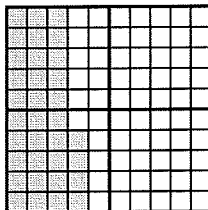
- 2 a  $\frac{3}{2} = 1.5$   
 b  $0.6 > \frac{9}{100}$   
 c  $\frac{36}{100} > 0.25$   
 d  $0.75 = \frac{9}{12}$   
 e  $83\frac{1}{2} > 83.48$   
 f  $\frac{125}{100} > 1.07$   
 g  $\frac{82}{100} < 0.9$   
 h  $74\frac{3}{4} < 74.8$
- 3 Responses will vary. Examples:  
 a 0.90



b 0.20

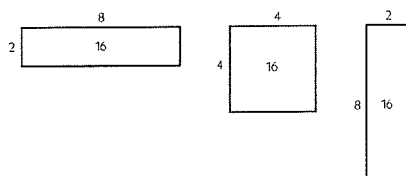


c 0.34



## Page 138, Jeff's Wallpaper Problem

- 1 328 square feet  
 2 90 square feet  
 3 (challenge) The area stays the same.



## Page 139, Multiplication, Area &amp; Perimeter Review

1 a

			56
1	6	7	42
4	2	4	32
4	1	9	36
			18

1 b

			0
7	3	0	0
4	2	9	72
5	3	3	45
			42

- 2 a Area = 1,862 square units  
 Perimeter = 174 units  
 b Area = 15,038 square units  
 Perimeter = 558 units  
 c Area = 11,164 square units  
 Perimeter = 474 units

3 (challenge)



## Page 140, Tiling the Kitchen Floor

- 1 Jean and Mike are covering their kitchen floor with big tiles. The floor is 21 feet long and 17 feet wide. The tiles they are using are each 1 foot wide and 3 feet long. Each tile weighs 5 pounds. The tiles come in packages of 10 that each cost \$120. How much will it cost them to cover their floor with these tiles?
- a Responses will vary. Example: *How much will Jean and Mike have to pay for the tiles they need?*  
 b & c See above.  
 d \$1,440.00



**Use after Unit Eight, Session 10 (cont.)****Page 140, Tiling the Kitchen Floor (cont.)**

- 2 Responses will vary. Example: *The floor is 357 square feet. The tiles are 3 square feet. If you divide 360 by 3, you get 120. That's 12 packages of 10 tiles.  $12 \times 120 = \$1,440.00$  so I know I'm right, even though they'll have one tile left over.*