

# Challenge Packet



RISING 5TH GRADERS (OPTIONAL)

## FIFTH GRADE

### GRADE LEVEL EXPECTATIONS IN MATHEMATICS

When entering sixth grade this is what is expected that your child should already know.

1. Understand the meaning of division of whole numbers and how to check your answers through multiplication. Ex.  $34 \div 5 = 6 \text{ r}4$ , so  $5 \times 6 = 30 + 4 = 34$ .
2. Fluently multiply a multi-digit number by a two-digit number.
3. Divide fluently up to a four-digit number by a two-digit number.
4. Find the prime factorization of numbers from 2 through 50, express in exponential notation.  
Ex.  $24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3^1$
5. Understand a fraction as a statement of division. Ex.  $2 \div 3 = \frac{2}{3}$
6. Multiply and divide 2 fractions and understand fact families.
7. Divide a fraction by a whole number and a whole number by a fraction.
8. Add and subtraction fractions using unlike denominators, using common denominators.
9. Multiply and divide by 10's, 100's and 1,000's using mental math.
10. Multiply up to 2-digits and decimals up to 2 digits.
11. Solve story problems with adding, subtracting, multiplying, dividing fractions and decimals.
12. Solve for the unknown in equations such as  $\frac{1}{4} + x = \frac{7}{12}$ .
13. Express fractions and decimals as percentages and vice versa.
14. Express ratios in several ways. Ex. 3 cups to 5 people,  $3 : 5$ ,  $\frac{3}{5}$ ; find equivalent ratios.
15. Recognize the equivalence of 1 liter, 1,000 ml and 1,000  $\text{cm}^3$  and conversion between.
16. Understand volume; cubic centimeter ( $\text{cm}^3$ ), cubic meter ( $\text{m}^3$ ), cubic inches ( $\text{in}^3$ ), cubic foot, ( $\text{ft}^3$ ), and cubic yard ( $\text{yd}^3$ ). Be able to compare one cubic inch to one cubic foot and one cubic centimeter to one cubic meter.
17. Convert measurements of length, weight, area, volume, and time within metric to metric and within standard measurement to standard measurement.
18. Know how to calculate the area of a triangle –  $A = \frac{1}{2}bh$  and area of a parallelogram  $A = bh$ .
19. Calculate the volume of a cube and rectangular prism.
20. Understand that the measurement of  $90^\circ$ ,  $180^\circ$ ,  $270^\circ$ , and  $360^\circ$  are associated respectively with  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$ , and full turns.
21. Measure angles with a protractor and classify them as acute, right, obtuse and straight.
22. Find unknown angles in problems with angles on a straight line, vertical angles and surrounding a point.
23. Know angles on a straight line =  $180^\circ$  and angles surrounding a point add up to  $360^\circ$ .
24. Know the sum of the interior angles of a triangle is  $180^\circ$  and the sum of the interior angles of a quadrilateral is  $360^\circ$ .
25. Read, interpret, and solve problems involving line graphs.
26. Construct line graphs from tables of data; including axis labels and scale.
27. Calculate and interpret the mean and mode of a given set of data.
28. Solve multi-step problems involving means,

## TERMS

**Edges:** This is all the straight lines of a figure. Like the edge of a desk.

**Faces:** This is the flat surface of a figure.

**Vertex:** This is all the corners of a figure.

**Right angle:** An angle at  $90^\circ$  like a corner of a piece of paper.

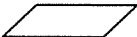
**Acute angle:** An angle smaller than a right angle.

**Obtuse angle:** An angle larger than a right angle.

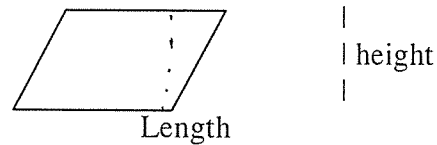
**Volume:** volume is length x width x height

**Perimeter:** You add up all the sides. (You are adding all lengths of the outer edges together.)

**Area:** Area of a square or rectangle = length (l) x width (w) answer is written in "square inches" (or whatever the measurement is)

Area of a parallelogram  is length x height.

Answer written in "square inches" (or whatever measurement)



Area of a triangle is  $\frac{1}{2}$  base x height or  $(\text{base} \times \text{height}) \div 2$

**Triangle:** Sum of the 3 interior angles of a triangle is always  $180^\circ$ .

**Quadrilateral:** Sum of the 4 interior angles in a quadrilateral is always  $360^\circ$ .

**Mean:** This is average. You add the set of number values and divide it by how many numbers you have.

**Median:** Arrange numbers from smallest to largest. What number is in the middle? That is the Median number.

**Mode:** What number occurs most often? This number is the mode.

**Range:** Subtract the largest number in the group from the smallest number in the group. This number is the range.

### **Conversion:**

60 seconds = 1 minute	24 hours = 1 day	16 ounces = 1 pound
60 minutes = 1 hour	12 months = 1 year	2,000 pounds = 1 ton
365 days = 1 year	52 weeks = 1 year	
12 inches = 1 foot	10 millimeter = 1 centimeter (approx. 3 $\frac{1}{2}$ centimeters = 1 inch)	
3 feet = 1 yard	100 centimeter = 1 meter (approx. 1 meter = 1 yard)	
5,280 feet = 1 mile	Liter to milliliter is the same as meter to millimeter	

### **Fractions:**

Adding and subtracting: you need to have the same common denominator (bottom) then, you + or – the numerators (top).

Multiplying: you multiply both numerators then you multiply both denominators. Convert to improper fractions if needed, no mixed numbers.

Dividing: convert to improper fractions; flip the second fraction in the equation then multiply.

# Entering 5<sup>th</sup> Grade Summer Math Packet

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

5<sup>th</sup> Grade Teacher: \_\_\_\_\_

I have checked the work completed: \_\_\_\_\_

Parent Signature

1. Find the products. **This page should be completed in 3 minutes no more than 4 minutes.**

**Have someone time you.** Any multiplication problem you do not know quickly, practice on flash cards.

6	4	7	5	12	3	6	3	0	7	5	6	3	8
<u>x2</u>	<u>x4</u>	<u>x2</u>	<u>x4</u>	<u>x0</u>	<u>x5</u>	<u>x3</u>	<u>x8</u>	<u>x8</u>	<u>x3</u>	<u>x5</u>	<u>x4</u>	<u>x9</u>	<u>x3</u>

6	2	3	8	7	12	8	3	11	7	9	4	4	9
<u>x5</u>	<u>x12</u>	<u>x6</u>	<u>x2</u>	<u>x5</u>	<u>x1</u>	<u>x4</u>	<u>x7</u>	<u>x4</u>	<u>x6</u>	<u>x2</u>	<u>x8</u>	<u>x6</u>	<u>x3</u>

4	5	0	5	9	5	2	9	5	11	5	9	7	7
<u>x7</u>	<u>x0</u>	<u>x3</u>	<u>x8</u>	<u>x4</u>	<u>x7</u>	<u>x1</u>	<u>x5</u>	<u>x6</u>	<u>x5</u>	<u>x9</u>	<u>x8</u>	<u>x7</u>	<u>x9</u>

8	6	8	1	9	9	8	1	9	2	1	3	12	1
<u>x8</u>	<u>x6</u>	<u>x7</u>	<u>x2</u>	<u>x6</u>	<u>x9</u>	<u>x6</u>	<u>x9</u>	<u>x1</u>	<u>x5</u>	<u>x1</u>	<u>x4</u>	<u>x3</u>	<u>x3</u>

8	8	12	8	12	5	3	4	2	7	6	2	6	12
<u>x0</u>	<u>x1</u>	<u>x4</u>	<u>x9</u>	<u>x0</u>	<u>x1</u>	<u>x2</u>	<u>x0</u>	<u>x2</u>	<u>x1</u>	<u>x8</u>	<u>x6</u>	<u>x7</u>	<u>x5</u>

8	4	2	9	12	11	2	7	0	6	1	5	3	2
<u>x5</u>	<u>x1</u>	<u>x8</u>	<u>x7</u>	<u>x8</u>	<u>x6</u>	<u>x9</u>	<u>x4</u>	<u>x2</u>	<u>x9</u>	<u>x0</u>	<u>x2</u>	<u>x3</u>	<u>x4</u>

4	12	4	4	1	2	11	6	7	5	2	1	4	11
<u>x9</u>	<u>x6</u>	<u>x2</u>	<u>x3</u>	<u>x4</u>	<u>x3</u>	<u>x7</u>	<u>x1</u>	<u>x8</u>	<u>x3</u>	<u>x7</u>	<u>x8</u>	<u>x5</u>	<u>x4</u>

2. Find the quotients. **This page should be completed in 3 no more than 4 minutes. Practice any problems you do not know instantly.** Think of the multiplication fact family. The better you know your multiplication facts the easier division will be.

$$\begin{array}{l} \overline{2)2} \quad \overline{3)9} \quad \overline{8)32} \quad \overline{7)49} \quad \overline{5)10} \quad \overline{4)0} \quad \overline{1)1} \quad \overline{4)8} \quad \overline{2)12} \quad \overline{9)54} \quad \overline{1)3} \quad \overline{1)2} \quad \overline{2)4} \end{array}$$

$$\begin{array}{l} \overline{8)8} \quad \overline{7)63} \quad \overline{8)40} \quad \overline{5)0} \quad \overline{4)4} \quad \overline{4)12} \quad \overline{9)45} \quad \overline{9)63} \quad \overline{6)6} \quad \overline{3)12} \quad \overline{1)7} \quad \overline{3)0} \quad \overline{1)9} \end{array}$$

$$\begin{array}{l} \overline{2)16} \quad \overline{3)3} \quad \overline{3)15} \quad \overline{5)20} \quad \overline{3)18} \quad \overline{3)6} \quad \overline{5)15} \quad \overline{7)0} \quad \overline{9)27} \quad \overline{4)16} \quad \overline{7)21} \quad \overline{4)20} \quad \overline{7)28} \end{array}$$

$$\begin{array}{l} \overline{8)16} \quad \overline{3)21} \quad \overline{9)18} \quad \overline{4)24} \quad \overline{2)6} \quad \overline{1)8} \quad \overline{5)35} \quad \overline{7)35} \quad \overline{3)27} \quad \overline{6)36} \quad \overline{3)24} \quad \overline{2)0} \quad \overline{4)32} \end{array}$$

$$\begin{array}{l} \overline{9)9} \quad \overline{4)36} \quad \overline{6)42} \quad \overline{5)40} \quad \overline{8)64} \quad \overline{7)14} \quad \overline{6)30} \quad \overline{8)56} \quad \overline{1)5} \quad \overline{4)28} \quad \overline{7)56} \quad \overline{8)24} \quad \overline{6)24} \end{array}$$

$$81 \div 9 = \underline{\quad\quad\quad} \quad 48 \div 6 = \underline{\quad\quad\quad} \quad 18 \div 6 = \underline{\quad\quad\quad} \quad 42 \div 7 = \underline{\quad\quad\quad}$$

$$10 \div 2 = \underline{\quad\quad\quad} \quad 54 \div 6 = \underline{\quad\quad\quad} \quad 36 \div 9 = \underline{\quad\quad\quad} \quad 45 \div 5 = \underline{\quad\quad\quad}$$

$$72 \div 8 = \underline{\quad\quad\quad} \quad 8 \div 2 = \underline{\quad\quad\quad} \quad 72 \div 9 = \underline{\quad\quad\quad} \quad 6 \div 1 = \underline{\quad\quad\quad}$$

$$25 \div 5 = \underline{\quad\quad\quad} \quad 5 \div 5 = \underline{\quad\quad\quad} \quad 18 \div 2 = \underline{\quad\quad\quad} \quad 30 \div 5 = \underline{\quad\quad\quad}$$

$$12 \div 1 = \underline{\quad\quad\quad} \quad 49 \div 7 = \underline{\quad\quad\quad} \quad 21 \div 3 = \underline{\quad\quad\quad} \quad 36 \div 6 = \underline{\quad\quad\quad}$$

Select the one best answer for each question. DO NOT use a calculator in completing this packet.

3. Jennie was assigned this problem:

$$\begin{array}{r} 146 \\ \times 25 \\ \hline \end{array}$$

She worked out the problem in this way:

$146 \times 2 = 292$ , and  $146 \times 5 = 730$ . Then she added  $292 + 730$ . She knew that her answer was wrong because her answer seemed too small. What should she have done differently?

- A. She should have multiplied  $146 \times 50$  instead of  $146 \times 50$ .
  - B. She should have multiplied  $146 \times 20$  instead of  $146 \times 2$ .
  - C. She should have multiplied  $146 \times 200$  instead of  $146 \times 2$ .
  - D. She should have multiplied  $140 \times 2$  instead of  $146 \times 2$ .
4. Which of the following is the correct computation of  $4,063 \times 52$ ? (Do not use a calculator.)

A.	B.	C.	D.
4,063	4,063	4,063	4,063
$\times 52$	$\times 52$	$\times 52$	$\times 52$
8026	8126	8126	8126
<u>200150</u>	<u>20315</u>	<u>2030150</u>	<u>203150</u>
208176	28441	2038276	211276

5. Samantha has to read a book that is 525 pages long. She has 21 days to read the book. How many pages will she need to read each day to finish on time?
- A. 21
  - B. 25
  - C. 546
  - D. 11,025
6. Andrew's family is going on vacation across the United States. They traveled 515 miles every day for 17 days. How many miles did they travel in all?
- A. 532
  - B. 4,120
  - C. 8,165
  - D. 8,755
7. Three classes of 25 students collected 8 cans of soup from each student. The cans were then to be divided between 4 charities. How many cans of soup went to each charity?
- A. 50
  - B. 108
  - C. 150
  - D. 800

8. Brent has a collection of 84 Bobble Head trophies he needs to box up for the move to his new home. He can fit 7 trophies into one box. How many boxes will Brent need?
- A. 10
  - B. 12
  - C. 13
  - D. 21
9. Kayla has 12 cousins. She received \$15.00 from each cousin for her birthday. How much money did she receive in all?
- A. \$27
  - B. \$120
  - C. \$150
  - D. \$180
10. The 5<sup>th</sup> grade is going on a trip to the state park. There are 1,012 students going. Each bus can hold 44 students. How many busses will they need? (Do not use a calculator.)
- A. 23
  - B. 26
  - C. 50
  - D. 968
11. Find  $1717 \div 17$ . Do not use a calculator.
- A. 11
  - B. 101
  - C. 107
  - D. 1001
12. Solve  $4806 \div 15$  without using a calculator, show your work.
- A. 32
  - B. 320 r 6
  - C. 320 r 4
  - D. 320
13. Solve  $647 \div 21$ . Do not use a calculator, show your work.
- A. 3 r 11
  - B. 3 r 21
  - C. 30 r 8
  - D. 30 r 17

14. Use a factor tree to find the prime factorization of the composite number 50. Which answer expresses the number in exponential notation (powers)?

A.  $2 \times 5^2$   
 B.  $2^2 \times 5^2$   
 C.  $2^3 \times 5^3$   
 D.  $10 \times 5$

15. Find the prime factorization for 84.

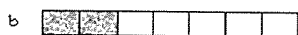
A.  $2 \times 42$   
 B.  $7 \times 2 \times 2 \times 3$   
 C.  $7 \times 4 \times 3$   
 D.  $7 \times 12$

16. Find the prime factorization for the number 48 expressed in exponential notation.

A.  $3^1 \times 2^4$   
 B.  $6 \times 8^1$   
 C.  $3 \times 2^4 \times 4$   
 D.  $3 \times 2^2 \times 4$

17. Which drawing would you use to find the product of these two fractions?

$$\frac{1}{4} \times \frac{1}{3} =$$



A. Drawing a  
 B. Drawing b  
 C. Drawing c  
 D. Drawing d

18. Solve this equation:

$$\frac{2}{3} \div 3 =$$

A. 2  
 B. 3  
 C.  $\frac{2}{6}$   
 D.  $\frac{2}{9}$



19. Solve the following:

$$\frac{1}{3} \div 4 =$$

- A.  $\frac{4}{3}$
- B.  $\frac{1}{7}$
- C.  $\frac{1}{12}$
- D. 12

20. Solve this equation:  $2 \div \frac{1}{4} =$

- A.  $\frac{1}{2}$
- B.  $\frac{2}{4}$
- C. 2
- D. 8

21. Mrs. Lovell's class is baking cookies. They need  $3\frac{3}{5}$  pounds of sugar and  $5\frac{1}{3}$  pounds of flour. When they mix the sugar and flour together, how many pounds will they have altogether?

- A.  $8\frac{4}{8}$  pounds
- B.  $8\frac{3}{4}$  pounds
- C.  $9\frac{3}{15}$  pounds
- D.  $8\frac{14}{15}$  pounds

22. Choose the correct answer for this problem:

$$\frac{7}{9} - \frac{3}{8} =$$

- A.  $\frac{10}{17}$
- B.  $\frac{29}{72}$
- C.  $\frac{56}{27}$
- D.  $\frac{21}{72}$

23. Choose the correct answer for this problem:

$$\frac{3}{7} + \frac{2}{9} =$$

- A.  $\frac{5}{16}$
- B.  $\frac{41}{63}$
- C.  $\frac{6}{63}$
- D.  $\frac{18}{14}$

24. Tom had  $\frac{7}{12}$  of a pizza. His little sister came along and took  $\frac{2}{5}$  of his pizza away. How much pizza does Tom have left?

- A.  $\frac{11}{60}$
- B.  $\frac{5}{7}$
- C.  $\frac{9}{17}$
- D.  $\frac{5}{60}$

25. Jill has  $\frac{3}{4}$  of a yard of ribbon. Tammy has  $\frac{4}{7}$  of a yard. How much do they have together?

- A.  $\frac{7}{11}$  of a yard
- B.  $\frac{40}{28}$  of a yard
- C.  $\frac{1}{3}$  of a yard
- D.  $\frac{37}{28}$  of a yard

26. Paul had  $3\frac{7}{8}$  cups of milk. He gave  $1\frac{3}{4}$  cups of milk to his cat. How much milk did he have left? Show your work.

- A. 2 cups
- B.  $2\frac{1}{8}$  cups
- C.  $2\frac{4}{4}$  cups
- D.  $1\frac{7}{8}$  cups

27. Nancy ate  $\frac{1}{3}$  of a pizza and Gabe ate  $\frac{1}{4}$  of the pizza. How much of the whole pizza is left?

- A.  $\frac{7}{12}$
- B.  $\frac{5}{12}$
- C.  $\frac{2}{7}$
- D.  $\frac{6}{7}$

28. Choose the correct answer for this problem:  $\frac{5}{4} - \frac{3}{12} =$

- A.  $\frac{2}{12}$
- B.  $\frac{12}{12}$
- C.  $\frac{9}{24}$
- D.  $\frac{2}{48}$

29. Patty brought  $\frac{1}{2}$  of a cake to class, and Joe brought  $\frac{3}{4}$  of a cake on the same day. How much cake did the class have altogether? Show your work.

- A.  $\frac{1}{4}$  cake
- B. 1 cake
- C.  $\frac{4}{6}$  cake
- D.  $1\frac{1}{4}$  cake

30. Don has \$12.32 in his piggy bank. He collects and returns pop cans for \$3.70. Approximately how much money does he have together? (Round the answer to the nearest whole dollar.)

- A. \$8
- B. \$15
- C. \$16
- D. \$17

37. Seven out of ten students in Ms. Allington's class completed the summer math packet. What percentage of students completed the packet?

- A. 7 %
- B. 70 %
- C. .7 %
- D. 14%

38. How much larger is one cubic foot than one cubic inch?

- A. 3 times larger
- B. 15 times larger
- C. 144 times larger
- D. 1728 times larger

39. Which of the following is NOT equivalent?

- A. 1 ton = 2000 pounds
- B. 1 mile = 5200 feet
- C. 9 feet = 3 yards
- D. 60 minutes = 3600 seconds

40. Sharon reads the juice bottle and finds that it contains 1.89 liters of juice. His cup only holds 240 milliliters so he wants to convert 1.89 liters to milliliters. The bottle contains how many milliliters?

- A. 1.89 milliliters
- B. 18.9 milliliters
- C. 189 milliliters
- D. 1890 milliliters

41. Solve the following:

$$\begin{array}{r} 2,749 \\ \times 68 \\ \hline \end{array}$$

$$\begin{array}{r} 156 \\ \times 78 \\ \hline \end{array}$$

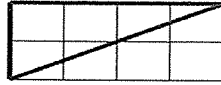
$$\begin{array}{r} 837 \\ \times 46 \\ \hline \end{array}$$

$$\begin{array}{r} 368 \\ \times 20 \\ \hline \end{array}$$

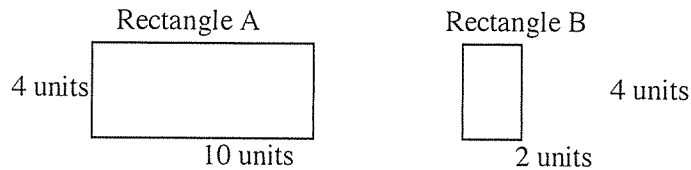
42. Which is true?

- A. 0.07 is ten times greater than 0.7
- B. 0.070 is ten times greater than 0.007
- C. 0.070 is equal to 0.0070
- D. 0.07 is seven times greater than 0.70

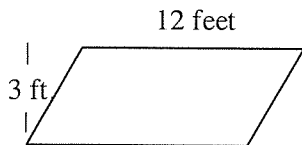
43. Using the rectangle method, what is the area of this triangle?



- A. 2 square units  
 B. 4 square units  
 C. 6 square units  
 D. 8 square units
44. Which statement is true about the relationship between the areas of these two rectangles?



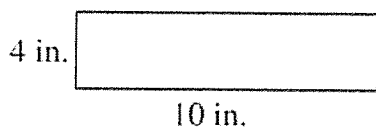
- A. Rectangle A has twice the area of Rectangle B.  
 B. Rectangle A has 5 times the area of Rectangle B.  
 C. Rectangle A has one-half the area of Rectangle B.  
 D. Rectangle A has one-fifth the area of Rectangle B.
45. What is the area of this quadrilateral?     Area = height x width



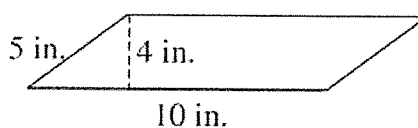
- A. 30 feet  
 B. 30 square feet  
 C. 36 feet  
 D. 36 square feet
46. Which of the following is a true statement?

- A. 0.003 is  $\frac{1}{3}$  the value of 0.03  
 B. 0.003 is 3 times the value of 0.03  
 C. 0.003 is  $\frac{1}{10}$  the value of 0.03  
 D. 0.003 is 10 times the value of 0.03

47. How do the areas of these two figures compare? Select your answer, then explain why you think you answer is correct.



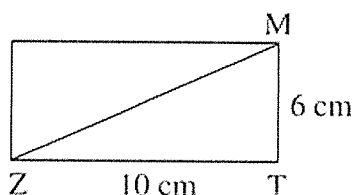
**Figure A**



**Figure B**

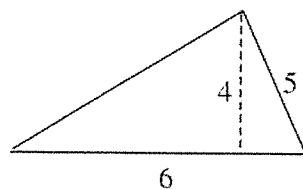
- A. The area of Figure A is greater than the area of Figure B.
- B. The area of Figure B is greater than the area of Figure A.
- C. The area of Figure A is equal to the area of Figure B.
- D. The area of Figure B is twice the area of Figure A.

48. Use the diagram to find the area of the triangle ZMT.



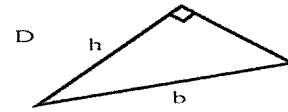
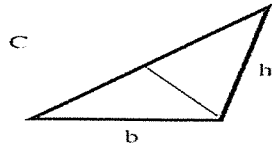
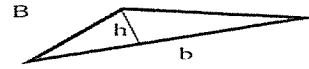
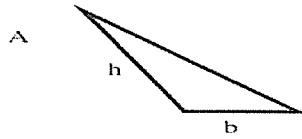
- A. 16 square cm
- B. 30 square cm
- C. 32 square cm
- D. 60 square cm

49. What is the area of this triangle?



- A.  $A = (5 \times 4) \div 2$
- B.  $A = (5 \times 5) \div 2$
- C.  $A = (6 \times 5) \div 2$
- D.  $A = (6 \times 4) \div 2$

50. The area of the triangle can be found using the formula  $A = bh \div 2$ . Which of the following figures is labeled correctly to apply this formula?



51. Solve each of these without using a calculator:

$4 \times 6 = \underline{\hspace{2cm}}$

$8 \times 8 = \underline{\hspace{2cm}}$

$6 \times 7 = \underline{\hspace{2cm}}$

$2 \times 9 = \underline{\hspace{2cm}}$

$5 \times 5 = \underline{\hspace{2cm}}$

$9 \times 6 = \underline{\hspace{2cm}}$

$8 \times 5 = \underline{\hspace{2cm}}$

$2 \times 2 = \underline{\hspace{2cm}}$

$3 \times 4 = \underline{\hspace{2cm}}$

$32 \div 4 = \underline{\hspace{2cm}}$

$7 \times 7 = \underline{\hspace{2cm}}$

$56 \div 7 = \underline{\hspace{2cm}}$

$72 \div 9 = \underline{\hspace{2cm}}$

$18 \div 2 = \underline{\hspace{2cm}}$

$3 \times 8 = \underline{\hspace{2cm}}$

$45 \div 9 = \underline{\hspace{2cm}}$

$4 \times 4 = \underline{\hspace{2cm}}$

$8 \times 7 = \underline{\hspace{2cm}}$

$24 \div 3 = \underline{\hspace{2cm}}$

$3 \times 3 = \underline{\hspace{2cm}}$

$3 \times 8 = \underline{\hspace{2cm}}$

52. Find the sum or difference. Watch the signs.

$$\begin{array}{r} 501 \\ -247 \\ \hline \end{array}$$

$$\begin{array}{r} 607 \\ -217 \\ \hline \end{array}$$

$$\begin{array}{r} 850 \\ +268 \\ \hline \end{array}$$

$$\begin{array}{r} 3,031 \\ -1,441 \\ \hline \end{array}$$

$$\begin{array}{r} 953 \\ +529 \\ \hline \end{array}$$

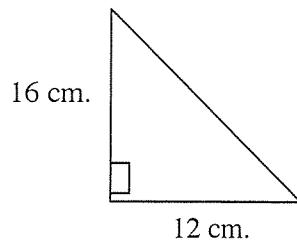
$$\begin{array}{r} 700 \\ -202 \\ \hline \end{array}$$

$$\begin{array}{r} 387 \\ 487+ \\ \hline \end{array}$$

53. Find the difference  $701.02 - 234.12$ . Show your work

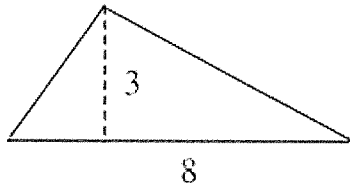
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54. What is the area in square centimeters of the triangle pictured below?



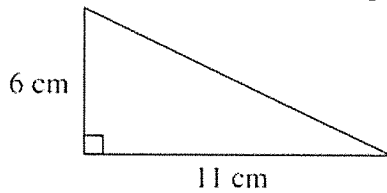
- A. 28 square cm.
- B. 56 square cm.
- C. 96 square cm.
- D. 192 square cm.

55. What is the area of this triangle?



- A. 7
- B. 11
- C. 12
- D. 24

56. What is the area of this triangle? ( $A = bh \div 2$ )

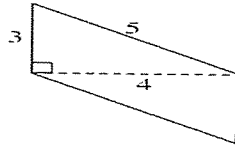


- A. 17 sq. cm.
- B. 33 sq. cm.
- C. 66 sq. cm.
- D. 132 sq. cm

57. The fraction  $\frac{4}{20}$  equals what percentage?

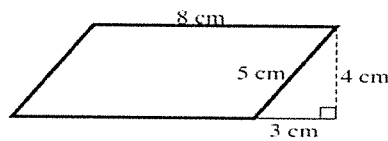
- A. 4 %
- B. 20%
- C. 25%
- D. 40%

58. Use the diagram to find the area of the parallelogram. ( $A = bh$ )



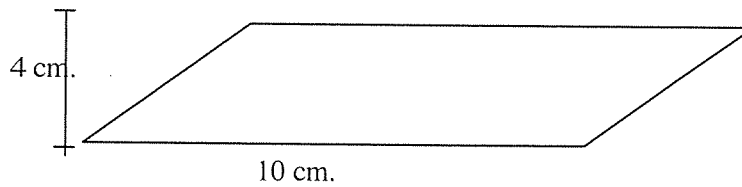
- A. 12 square centimeters
- B. 15 square centimeters
- C. 20 square centimeters
- D. 60 square centimeters

59. Find the area of the parallelogram below.



- A.  $12 \text{ cm}^2$
- B.  $24 \text{ cm}^2$
- C.  $32 \text{ cm}^2$
- D.  $40 \text{ cm}^2$

60. What is the area of the parallelogram shown below?



- A.  $14 \text{ cm}^2$
- B.  $20 \text{ cm}^2$
- C.  $28 \text{ cm}^2$
- D.  $40 \text{ cm}^2$

61. The area of this parallelogram is 24 square units. The base of the parallelogram is 8 units. What is the height of the figure? Circle your answer below and draw the height on the parallelogram.



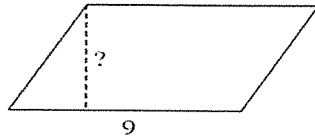
- A. 2 units
- B. 3 units
- C. 4 units
- D. 6 units



62. The area of a parallelogram is 36 square inches. All of the following are possible bases and heights for this figure EXCEPT:

A. 1 inch by 36 inches  
B. 3 inches by 12 inches  
C. 4 inches by 9 inches  
D. 5 inches by 7 inches

63. The base of the parallelogram below is 9 centimeters. The area is 72 square centimeters. What must the height of the parallelogram be? ( $A = bh$ )



A. 6 centimeters  
B. 7 centimeters  
C. 8 centimeters  
D. 9 centimeters

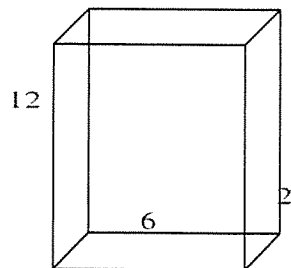
64. Using unit cubes, build a solid that is 6 units in length, 2 units in width, and 3 units in height. What is the volume?

A. 11 cube units  
B. 18 cube units  
C. 24 cube units  
D. 36 cube units

65. Using unit cubes, build a solid that is 4 units in length, 4 units in width, and 4 units in height. What is the volume?

A. 12 cube units  
B. 16 cube units  
C. 36 cube units  
D. 64 cube units

66. A cereal box has the shape of a rectangular prism. It is 12 inches high, 6 inches wide and 2 inches deep. How many cubic inches of cereal can it hold?



A. 20  
B. 40  
C. 72  
D. 144

67. If the minute hand moves half way around a clock, how many degrees has the minute hand turned?

- A.  $90^\circ$
- B.  $180^\circ$
- C.  $270^\circ$
- D.  $360^\circ$

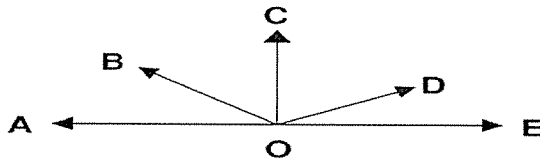
68. If you are facing north and you turn your body so that you are facing east, how many degrees have you turned?

- A.  $90^\circ$
- B.  $180^\circ$
- C.  $270^\circ$
- D.  $360^\circ$

69. Find the sum of  $23.5 + 157.93$ . Show your work.

\_\_\_\_\_

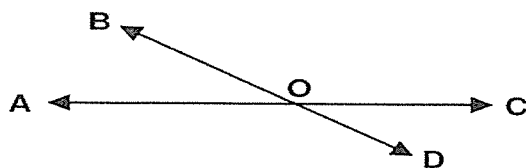
70. Which of the following angles is an acute angle?



- A.  $\angle BOE$
- B.  $\angle AOD$
- C.  $\angle BOC$
- D.  $\angle COE$

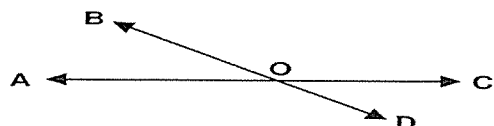
Γ

71. Which of these angles is a straight angle?



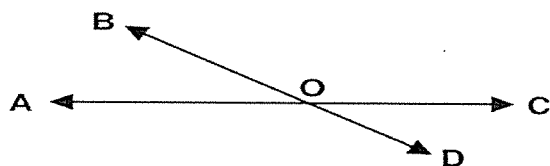
- A.  $\angle AOD$
- B.  $\angle AOC$
- C.  $\angle AOD$
- D.  $\angle COD$

72. Which pair of angles are vertical angles?



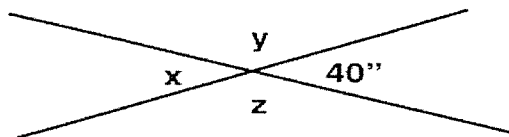
- A.  $\angle AOD$  and  $\angle BOC$
- B.  $\angle AOB$  and  $\angle BOC$
- C.  $\angle BOC$  and  $\angle COD$
- D.  $\angle AOC$  and  $\angle BOD$

73. Which of these angles is a vertical angle to  $\angle DOC$ ?



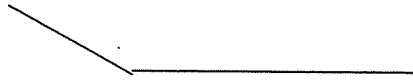
- A.  $\angle AOB$
- B.  $\angle BOC$
- C.  $\angle AOD$
- D.  $\angle DOA$

74. What is the measure of angle y? (Do NOT use a protractor to find your answer.)

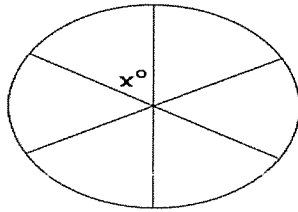


- A. 40
- B. 50
- C. 140
- D. 180

75. In the diagram below, which is the closest to the angle measurement? (Do NOT use a protractor to find your answer.)

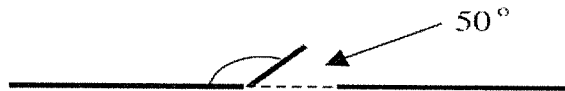


- A. 25 degrees
  - B. 85 degrees
  - C. 150 degrees
  - D. 180 degrees
76. A pizza is divided into 6 pieces. Each piece is the same size, as shown in the picture. Think about what the total angle measurement is for all 6 pieces. Then calculate the angle measurement for one piece, angle  $x$ .



One piece of pizza has an angle measure of

- A.  $30^\circ$
  - B.  $40^\circ$
  - C.  $50^\circ$
  - D.  $60^\circ$
77. A gate is open in a 50 degree angle. How many more degrees will the gate have to open until it is flat against the fence?



- A.  $40^\circ$
- B.  $100^\circ$
- C.  $130^\circ$
- D.  $310^\circ$

78. Solve the following:

$1 \times 9 = \underline{\hspace{2cm}}$

$3 \times 6 = \underline{\hspace{2cm}}$

$9 \times 7 = \underline{\hspace{2cm}}$

$6 \times 2 = \underline{\hspace{2cm}}$

$8 \times 6 = \underline{\hspace{2cm}}$

$2 \times 2 = \underline{\hspace{2cm}}$

$3 \times 8 = \underline{\hspace{2cm}}$

$9 \times 9 = \underline{\hspace{2cm}}$

$24 \div 3 = \underline{\hspace{2cm}}$   
 $= \underline{\hspace{2cm}}$

$7 \times 7 = \underline{\hspace{2cm}}$

$56 \div 7 = \underline{\hspace{2cm}}$

$4 \times 0 = \underline{\hspace{2cm}}$

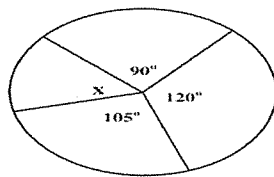
$48 \div 6 = \underline{\hspace{2cm}}$

$18 \div 6 = \underline{\hspace{2cm}}$

$7 \times 3 = \underline{\hspace{2cm}}$

$7 \times 6 = \underline{\hspace{2cm}}$

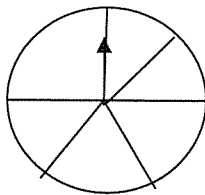
79. In a spinner game, the spinner has 4 regions of unequal size, as shown below.



How many degrees are in the missing angle x? (Do NOT use a protractor.)

- A.  $30^\circ$
- B.  $45^\circ$
- C.  $60^\circ$
- D.  $75^\circ$

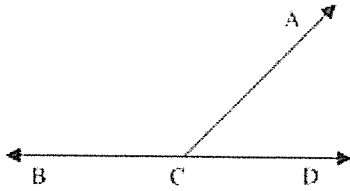
80. Raymond played with a game spinner shown below and realized that he could see angles in different sections of the spinner.



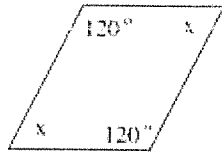
What is the sum of all these angles?

- A.  $90^\circ$
- B.  $185^\circ$
- C.  $275^\circ$
- D.  $360^\circ$

81.  $\angle ACD$  measures  $60^\circ$ . Find the measurement of  $\angle ACB$ . (Do NOT use a protractor.)



- A.  $120^\circ$
  - B.  $130^\circ$
  - C.  $160^\circ$
  - D.  $180^\circ$
82. Which of the following could be the measures of the interior angles of a triangle?
- A.  $30^\circ, 30^\circ, 30^\circ$
  - B.  $30^\circ, 60^\circ, 90^\circ$
  - C.  $60^\circ, 90^\circ, 120^\circ$
  - D.  $60^\circ, 120^\circ, 180^\circ$
83. This is a parallelogram. In all parallelograms, the opposite angles are equal. Find the measure of angle  $x$ .

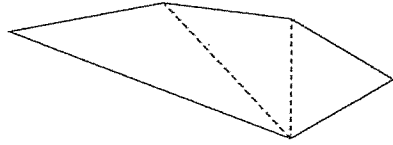


- A.  $50^\circ$
  - B.  $60^\circ$
  - C.  $70^\circ$
  - D.  $120^\circ$
84. What is the measurement of angle A?



- A.  $45^\circ$
- B.  $60^\circ$
- C.  $90^\circ$
- D.  $120^\circ$

85. What is the sum of the angles in this polygon? Choose the correct answer, and then explain how you figured it out.



- A.  $180^\circ$   
 B.  $360^\circ$   
 C.  $540^\circ$   
 D.  $720^\circ$
86. In a quadrilateral, two of the angles each have a measure of  $110^\circ$ , and the measure of the third angle is  $90^\circ$ . What is the measure of the remaining angle?
- A.  $50^\circ$   
 B.  $90^\circ$   
 C.  $130^\circ$   
 D.  $160^\circ$
87. In this triangle, what is the measure of angle B?

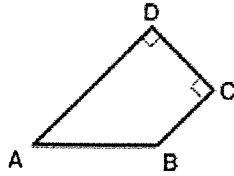


- A.  $30^\circ$   
 B.  $45^\circ$   
 C.  $60^\circ$   
 D.  $180^\circ$
88. What is the measurement of angle X in this triangle?

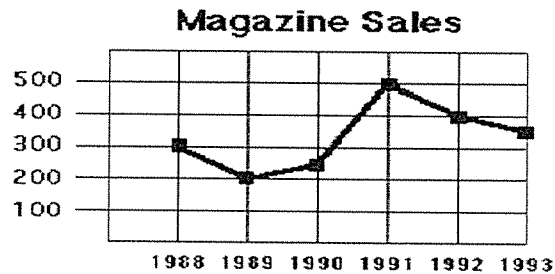


- A.  $90^\circ$   
 B.  $120^\circ$   
 C.  $130^\circ$   
 D.  $135^\circ$

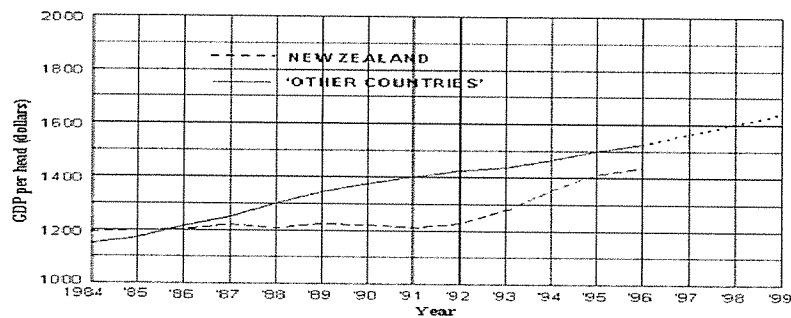
89. If angle A equals  $45^\circ$ , what is the measure of angle B? Choose the correct answer, then explain how you figured it out.



- A.  $60^\circ$   
 B.  $130^\circ$   
 C.  $135^\circ$   
 D.  $145^\circ$
90. How many more magazines were sold in 1990 than in 1989?



- A. About 50 magazines  
 B. About 100 magazines  
 C. About 200 magazines  
 D. About 250 magazines
91. Using the graph below, when did New Zealand's GDP increase the most?



Gross Domestic Product (GDP) for New Zealand and Other Countries

- A. 1986-87  
 B. 1988-89  
 C. 1992-93  
 D. 1995-96



92. Using the graph above. In 1988 what was the difference of the GDP for Other Countries and New Zealand?

- A. About \$100 per head
- B. About \$200 per head
- C. About \$1200 per head
- D. About \$1300 per head

93. Family A has 2 children, Family B has 1 child, Family C has 1 child, and Family D has 4 children. What is the mean number of children for the families?

- A. 1
- B. 2
- C. 3
- D. 4

94. The set of data below represents the number of books read in one month by each member of the book club.

3, 6, 7, 3, 3, 9, 0, 0, 1, 3, 7, 2, 5, 9, 7

What is the mode number of books for this set of data?

- A. 0
- B. 3
- C. 7
- D. 9

What is the range number of books for the set of data above?

- A. 0
- B. 1
- C. 7
- D. 9

95. The data below show a set of Angela's golf scores. What is the mean of the scores listed?

84, 88, 88, 77, 73

- A. 73
- B. 82
- C. 84
- D. 88

96. Family A has 2 children, Family B has 0 children, Family C has 1 child, and Family D has 0 children. Find the mode for this data.

- A. 0
- B. 1
- C. 2
- D. 3

97. Find the difference:

701	68	100	63	35	114	66
<u>- 35</u>	<u>- 27</u>	<u>- 37</u>	<u>- 47</u>	<u>- 15</u>	<u>- 37</u>	<u>- 24</u>

98. Find the product:

36.1	0.47	5.9	0.28	19	5.6	78
<u>x 3.7</u>	<u>x 68</u>	<u>x 39</u>	<u>x 1.8</u>	<u>x 4.7</u>	<u>x 3.6</u>	<u>x .37</u>

99. Last summer Samantha swam the backstroke in five swim meets. Her times were:

56 seconds    56 seconds    44 seconds    47 seconds    42 seconds

Find the mean of her times.

- A. 47
- B. 49
- C. 50
- D. 56

100. Mary's quiz scores were 92, 85, 78, 92, 71, 77, and 80. She told her mother she had an average of 92 for her quiz scores. Which term best describes her average score?

- A. Mean
- B. Median
- C. Mode
- D. Range

101. What is the mean of this set of numbers? 4, 8, 3, 2, 5, 8, 12

- A. 4
- B. 5
- C. 6
- D. 7

102. What is the median of this set of numbers? 4, 8, 3, 2, 5, 8, 12

- A. 6
- B. 8
- C. 5
- D. 4

103. What is the mode of this set of numbers? 8, 1, 3, 10, 8, 1, 2, 5, 6, 1, 88

\_\_\_\_\_

104. Students collected books for a book drive. Five students collected the following number of books:  
Student 1: 17 books  
Student 2: 8 books  
Student 3: 10 books  
Student 4: 8 books  
Student 5: 12 books

What is the mode of this set of data? \_\_\_\_\_

What is the mean number of books collected per student?

- A. 8 books  
B. 10 books  
C. 11 books  
D. 12 books
105. The mean of nine test scores is 61. If a score of 71 is added to the group of scores, what is the new mean?
- A. 62  
B. 65  
C. 66  
D. 68
106. What is the difference between the mean salary of the workers and the mean salary of everyone including the President and Vice-President? You may use a calculator.

Position	Salary
President	\$256,000
Vice-President	\$127,000
Worker #1	\$ 35,000
Worker #2	\$ 20,000
Worker #3	\$ 18,000
Worker #4	\$ 31,000
Worker #5	\$ 24,000
Worker #6	\$ 21,000
Worker #7	\$26,000

- A. \$25,000  
B. \$37,000  
C. \$45,000  
D. \$62,000

107. The table shows the scores of 20 students on a history test. What is the average student score? You may use a calculator.

Score	Number of Students
90	3
85	5
80	3
75	4
70	2
60	0
55	3

- A. 26  
B. 74  
C. 77  
D. 85

108. Sandy had test scores of 20, 25, 17, 22 and 21 (out of 25 total). What is her average (mean) score?

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On the next 3 tests Sandy's scores were 24, 24 and 23. What is her mean now?

- A. 24  
B. 23  
C. 22  
D. 21

Explain how you figured this out.

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109. Philip solved the following problem incorrectly. Explain his mistake.

$$\begin{array}{r} 1659 \\ \times 21 \\ \hline 1659 \\ +3318 \\ \hline 4977 \end{array}$$

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110. Use mental math to solve:

- A.  $400 \times 3 =$  \_\_\_\_\_  $60 \times 60 =$  \_\_\_\_\_  $8,000 \times 20 =$  \_\_\_\_\_
- B.  $1600 \div 80 =$  \_\_\_\_\_  $250 \div 50 =$  \_\_\_\_\_  $12000 \div 400 =$  \_\_\_\_\_

111. Find the product:

$$\begin{array}{r} 36 \\ \times 47 \\ \hline \end{array}$$

$$\begin{array}{r} 47 \\ \times 68 \\ \hline \end{array}$$

$$\begin{array}{r} 59 \\ \times 39 \\ \hline \end{array}$$

$$\begin{array}{r} 28 \\ \times 18 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \\ \times 47 \\ \hline \end{array}$$

$$\begin{array}{r} 56 \\ \times 36 \\ \hline \end{array}$$

$$\begin{array}{r} 78 \\ \times 37 \\ \hline \end{array}$$

112. Construct a factor tree for the composite number 27. Express your answer in exponential notation (powers).

113. Nancy and Gabe had a pizza with 12 pieces. Brent ate  $\frac{1}{3}$  of a pizza and Kayla ate  $\frac{1}{4}$  of a pizza. How much of the whole pizza is left? Show your work.

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114. Show which is larger, smaller or equal using the less than symbol (<), the greater than symbol (>), or the equal sign (=).

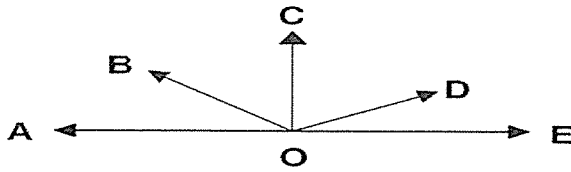
$$1 \text{ in.}^3 \text{ _____ } 1 \text{ ft.}^3$$

$$1 \text{ cm.}^3 \text{ _____ } 1 \text{ m.}^3$$

$$2 \text{ ft.}^3 \text{ _____ } 1 \text{ yd.}^3$$

115. Explain why the formula for finding the area of a triangle makes sense in terms of the area of a rectangle (use a drawing in your explanation).

116. Use a protractor to measure the following angles. Then classify them as acute, obtuse, or right angles.



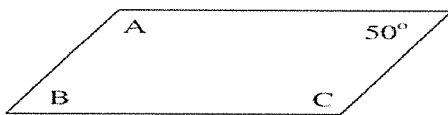
$\angle DOE =$  \_\_\_\_\_ This angle is \_\_\_\_\_ (acute, obtuse or right?)

$\angle COD =$  \_\_\_\_\_ This angle is \_\_\_\_\_ (acute, obtuse or right?)

$\angle BOE =$  \_\_\_\_\_ This angle is \_\_\_\_\_ (acute, obtuse or right?)

$\angle AOC =$  \_\_\_\_\_ This angle is \_\_\_\_\_ (acute, obtuse or right?)

117. This parallelogram has one angle of  $50^\circ$ . What are the measures of the other angles?



A. Measure of angle A \_\_\_\_\_

B. Measure of angle B \_\_\_\_\_

C. Measure of angle C \_\_\_\_\_

118. Show your work:  $723.89 + 23.8 =$  \_\_\_\_\_

119. Show your work:  $824.03 - 123.8 =$  \_\_\_\_\_

120. Show your work:  $4.3 \times 6.8 =$  \_\_\_\_\_

121. Do the following divisions. Then check your answer. Show your work. No calculators!

A.  $1524 \div 6 = \underline{\hspace{2cm}}$

Check your work:

$$\begin{array}{r} \times 6 \\ \hline 1524 \end{array}$$

B.  $380 \div 10 = \underline{\hspace{2cm}}$

$$\begin{array}{r} \times 10 \\ \hline 380 \end{array}$$

C.  $4235 \div 10 = \underline{\hspace{2cm}}$

$$\times \underline{\hspace{2cm}}$$

D.  $4 \overline{) 769}$

$$\times \underline{\hspace{2cm}}$$

E.  $5 \overline{) 765}$

$$\times \underline{\hspace{2cm}}$$

122. Find the products or quotient.

Any multiplication problem you do not know quickly please practice on flash cards.

$$\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 0 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 1 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 6 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 6 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$$

$$\overline{2)16} \quad \overline{3)3} \quad \overline{3)15} \quad \overline{5)20} \quad \overline{3)18} \quad \overline{3)6} \quad \overline{5)15} \quad \overline{7)56} \quad \overline{9)27} \quad \overline{4)16} \quad \overline{7)21} \quad \overline{4)20} \quad \overline{7)28}$$

$$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 6 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 12 \\ \times 12 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 0 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times 9 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$$

$$72 \div 8 = \underline{\hspace{2cm}} \quad 8 \div 2 = \underline{\hspace{2cm}} \quad 72 \div 9 = \underline{\hspace{2cm}} \quad 6 \div 1 = \underline{\hspace{2cm}}$$

$$\overline{8)16} \quad \overline{3)21} \quad \overline{9)18} \quad \overline{4)24} \quad \overline{2)6} \quad \overline{1)8} \quad \overline{5)35} \quad \overline{7)35} \quad \overline{3)27} \quad \overline{6)36} \quad \overline{3)24} \quad \overline{2)0} \quad \overline{4)32}$$

$$\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times 9 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 1 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 11 \\ \times 4 \\ \hline \end{array}$$

123. Convert from fraction, decimal and percentage.

Fraction (simplest form)	Decimal	Percentage
$\frac{1}{2}$	<u>          </u>	<u>          </u>
<u>          </u>	<u>          </u>	20%
<u>          </u>	.08	<u>          </u>
$\frac{3}{10}$	<u>          </u>	<u>          </u>



Answer the following in simplest form. Show your work.

124.  $\frac{1}{2} + \frac{3}{4} =$  \_\_\_\_\_

125.  $2\frac{2}{7} + 1\frac{2}{3} =$  \_\_\_\_\_

126.  $\frac{5}{9} - \frac{3}{12} =$  \_\_\_\_\_

127.  $7\frac{2}{3} - 3\frac{1}{12} =$  \_\_\_\_\_  
( $3\frac{1}{2}$ )

128.  $\frac{1}{2} - \frac{2}{3} =$  \_\_\_\_\_

129.  $8 \times \frac{1}{4} =$  \_\_\_\_\_

130.  $\frac{2}{9} \times \frac{1}{5} =$  \_\_\_\_\_

131.  $\frac{3}{4} \div \frac{2}{3} =$  \_\_\_\_\_

132.  $\frac{2}{8} \div 6 =$  \_\_\_\_\_

133.  $3 \div \frac{1}{4} =$  \_\_\_\_\_

**CONGRATULATIONS!!!** You have completed the summer math packet. You are now ready for 5<sup>th</sup> grade success! Please turn this packet into your 5<sup>th</sup> grade teacher, the first week of school.

