

Cumulative Practice

1. A football team gains 2 yards on the first play, loses 5 yards on the second play, loses 3 yards on the third play, and gains 4 yards on the fourth play. What is the team's total gain or loss?

A. a gain of 14 yards B. a gain of 2 yards
C. a loss of 2 yards D. a loss of 14 yards

2. Which expression is *not* equal to 0?

F. $5 - 5$ G. $-7 + 7$
H. $6 - (-6)$ I. $-8 - (-8)$

3. What is the value of the expression?

$$|-2 - (-2.5)|$$

A. -4.5 B. -0.5
C. 0.5 D. 4.5

4. What is the value of the expression?



$$17 - (-8)$$

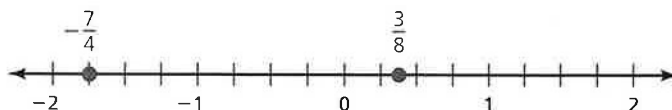
A. 25

B. -9

C. 9

D. -25

5. What is the distance between the two numbers on the number line?

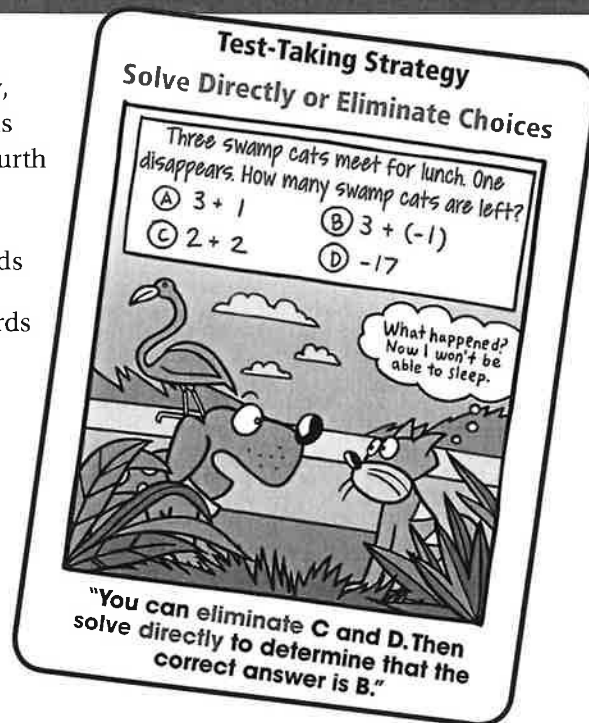


F. $-2\frac{1}{8}$

G. $-1\frac{3}{8}$

H. $1\frac{3}{8}$

I. $2\frac{1}{8}$



6. What is the value of the expression when $a = 8$, $b = 3$, and $c = 6$?

$$|a^2 - 2ac + 5b|$$

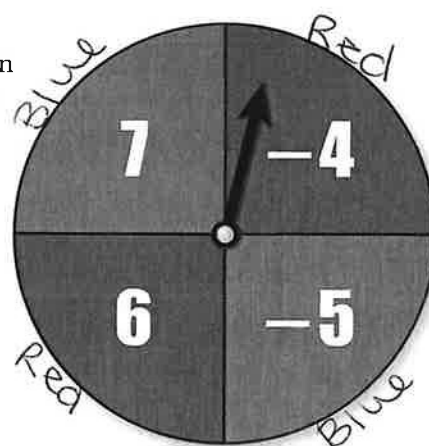
- A. -65
B. -17
C. 17
D. 65

7. What is the value of the expression?



$$-9.74 + (-2.23)$$

8. Four friends are playing a game using the spinner shown. Each friend starts with a score of 0 and then spins four times. When you spin blue, you add the number to your score. When you spin red, you subtract the number from your score. The highest score after four spins wins. Each friend's spins are shown. Which spins belong to the winner?



- F. 6, 7, 7, 6
G. -4, -4, 7, -5
H. 6, -5, -4, 7
I. -5, 6, -5, 6

9. What number belongs in the box to make the equation true?

$$3\frac{1}{2} \div 5\frac{2}{3} = \frac{7}{2} \times \boxed{}$$

- A. $\frac{3}{17}$
B. $\frac{3}{2}$
C. $\frac{17}{3}$
D. $\frac{13}{2}$

10. What is the value of the expression?

$$\frac{5.2 - 2.25}{0.05}$$

- F. -346
G. 0.59
H. 5.9
I. 59

10. You leave school and walk 1.237 miles west. Your friend leaves school and walks 0.56 mile east. How far apart are you and your friend?

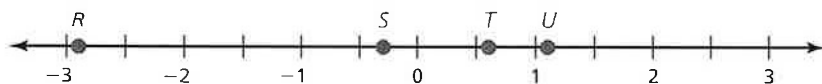
A. 0.677 mile B. 0.69272 mile
C. 1.293 miles D. 1.797 miles

11. Which property does the equation represent?

$$-80 + 30 + (-30) = -80 + [30 + (-30)]$$

F. Commutative Property of Addition
G. Associative Property of Addition
H. Additive Inverse Property
I. Addition Property of Zero

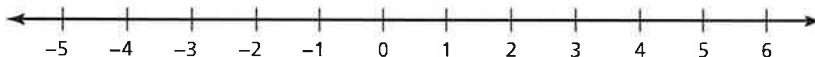
12. The values of which two points have the greatest sum?



A. R and S B. R and U
C. S and T D. T and U

13. Consider the number line shown.

Think
Solve
Explain



Part A Use the number line to explain how to add -2 and -3 .

Part B Use the number line to explain how to subtract 5 from 2.

13. Which expression represents a *negative* value?

F. $2 - |-7 + 3|$ G. $|-12 + 9|$
H. $|5| + |11|$ I. $|8 - 14|$

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Cumulative Practice

- 14 When José and Sean were each 5 years old, José was $1\frac{1}{2}$ inches taller than Sean. Then José grew at an average rate of $2\frac{3}{4}$ inches per year until he was 13 years old. José was 63 inches tall when he was 13 years old. How tall was Sean when he was 5 years old?

- A. $39\frac{1}{2}$ in. B. $42\frac{1}{2}$ in.
C. $44\frac{3}{4}$ in. D. $47\frac{3}{4}$ in.

- 15 What is the value of $-5 + (-7)$?

- F. -12 G. -2
H. 2 I. 12

- C What is the value of the expression?



$$-\frac{9}{16} + \frac{9}{8}$$

- 16 What is the value of $|a^2 - 2ac + 5b|$ when $a = -2$, $b = 3$, and $c = -5$?

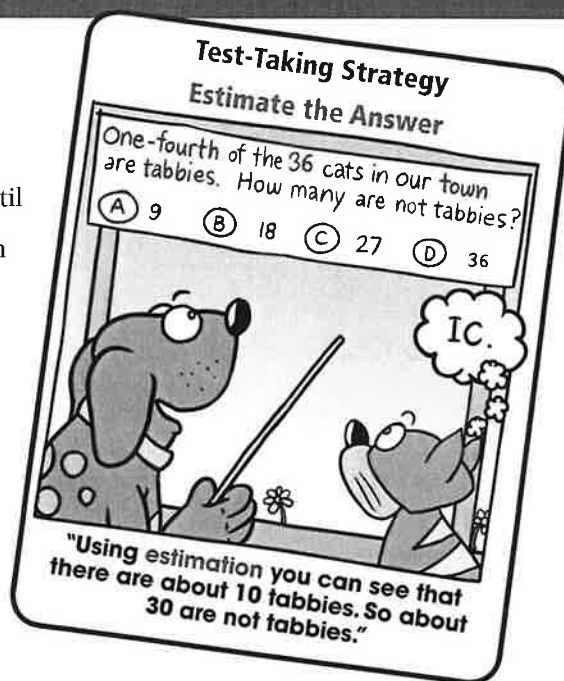
- A. -9 B. -1
C. 1 D. 9

- 17 Your friend evaluated the expression.

$$\begin{aligned} 2 - 3 - (-5) &= -5 - (-5) \\ &= -5 + 5 \\ &= 0 \end{aligned}$$

What should your friend do to correct the error that he made?

- F. Subtract 5 from -5 instead of adding.
G. Rewrite $2 - 3$ as -1.
H. Subtract -5 from 3 before subtracting 3 from 2.
I. Rewrite $-5 + 5$ as -10.



18 What is the value of $-1\frac{1}{2} - (-1\frac{3}{4})$?

A. $-3\frac{1}{4}$

B. $\frac{1}{4}$

C. $\frac{6}{7}$

D. $2\frac{5}{8}$

19 What is the value of the expression when $q = -2$, $r = -12$, and $s = 8$?

$$\frac{-q^2 - r}{s}$$

F. -2

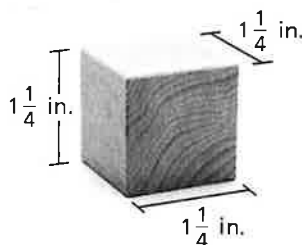
G. -1

H. 1

I. 2



D You are stacking wooden blocks with the dimensions shown. How many blocks do you need to stack vertically to build a block tower that is $7\frac{1}{2}$ inches tall?



20 Your friend evaluated an expression.

$$\begin{aligned} -4\frac{3}{4} + 2\frac{1}{5} &= -\frac{19}{4} + \frac{11}{5} \\ &= -\frac{95}{20} + \frac{44}{20} \\ &= \frac{-95 + 44}{20} \\ &= \frac{-139}{20} \\ &= -6\frac{19}{20} \end{aligned}$$

What should your friend do to correct the error that she made?

A. Rewrite $-\frac{19}{4} + \frac{11}{5}$ as $\frac{-19 + 11}{4 + 5}$.

B. Rewrite $-95 + 44$ as -51 .

C. Rewrite $\frac{-95 + 44}{20}$ as $\frac{51}{20}$.

D. Rewrite $-4\frac{3}{4}$ as $-\frac{13}{4}$.

21 Which expression has the greatest value when $x = -2$ and $y = -3$?

F. $-xy$

G. xy

H. $x - y$

I. $-x - y$

E. Four points are graphed on the number line.



Part A Choose the two points whose values have the greatest sum.
Approximate this sum. Explain your reasoning.

Part B Choose the two points whose values have the greatest difference.
Approximate this difference. Explain your reasoning.

Part C Choose the two points whose values have the greatest product.
Approximate this product. Explain your reasoning.

Part D Choose the two points whose values have the greatest quotient.
Approximate this quotient. Explain your reasoning.

22 What number belongs in the box to make the equation true?

$$\frac{-0.4}{\boxed{}} + 0.8 = -1.2$$

A. -1

B. -0.2

C. 0.2

D. 1

23 Which expression has a negative value when $x = -4$ and $y = 2$?

F. $-x + y$

G. $y - x$

H. $x - y$

I. $-x - y$

24 What is the area of a triangle with a base of $2\frac{1}{2}$ inches and a height of 2 inches?

A. $2\frac{1}{4}\text{ in.}^2$

B. $2\frac{1}{2}\text{ in.}^2$

C. $4\frac{1}{2}\text{ in.}^2$

D. 5 in.^2

25 Which decimal is equivalent to $\frac{2}{9}$?

F. 0.2

G. $0.\overline{2}$

H. 0.29

I. 4.5

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Cumulative Practice

26 What is the simplified form of the expression?

$$3.7x - 5 - 2.3x$$

- A. $-3.6x$
- B. $6x - 5$
- C. $1.4x - 5$
- D. $3.7x - 7.3$

F What is the value of the expression when $c = 0$ and $d = -6$?



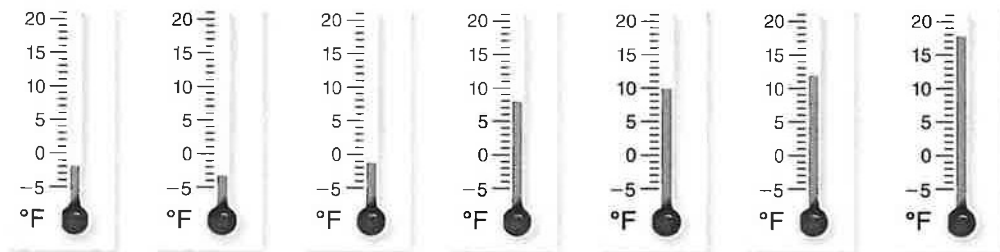
$$\frac{cd - d^2}{4}$$

27 What is the value of the expression?

$$-38 - (-14)$$

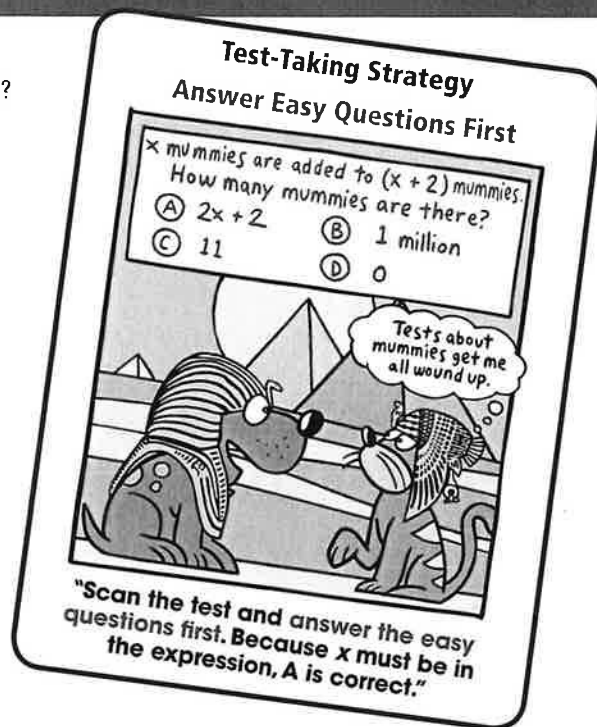
- F. -52
- G. -24
- H. 24
- I. 52

28 The daily low temperatures for a week are shown.



What is the mean low temperature of the week?

- A. -2°F
- B. 6°F
- C. 8°F
- D. 10°F



- 29 You and a friend collect seashells on a beach. After h minutes, you have collected $(11 + 2h)$ seashells and your friend has collected $(5h - 2)$ seashells. How many total seashells have you and your friend collected?

F. $7h + 9$ G. $3h - 13$
H. $16h$ I. $7h + 13$

- 30 What is the value of the expression?



$$-0.28 \div (-0.07)$$

- 31 Which list is ordered from least to greatest?

A. $-\left|\frac{3}{4}\right|, -\frac{1}{2}, \left|\frac{3}{8}\right|, -\frac{1}{4}, -\frac{7}{8}$ B. $-\frac{1}{2}, -\frac{1}{4}, \left|\frac{3}{8}\right|, -\left|\frac{3}{4}\right|, -\frac{7}{8}$
C. $-\frac{7}{8}, \left|\frac{3}{8}\right|, -\frac{1}{4}, -\frac{1}{2}, -\left|\frac{3}{4}\right|$ D. $-\left|\frac{3}{4}\right|, -\frac{1}{2}, -\frac{1}{4}, \left|\frac{3}{8}\right|, -\frac{7}{8}$

- 32 Which number is equivalent to the expression shown?

$$-2\frac{1}{4} - \left(-8\frac{3}{8}\right)$$

F. $-10\frac{5}{8}$ G. $-10\frac{1}{3}$
H. $6\frac{1}{8}$ I. $6\frac{1}{2}$

- 32 What is the simplified form of the expression?

$$7x - 2(3x + 6)$$

A. $15x + 30$ B. $x - 12$
C. $13x + 12$ D. $-11x$

33 Which expression is *not* equivalent to the expression?

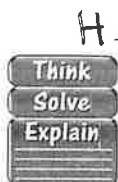
$$72m - 60$$

F. $6(12m - 10)$

G. $4(18m - 15)$

H. $12m$

I. $12(6m - 5)$



You want to buy a bicycle with your friend. You have \$43.50 saved and plan to save an additional \$7.25 every week. Your friend has \$24.50 saved and plans to save an additional \$8.75 every week.

Part A Simplify and interpret an expression that represents the amount of money you and your friend save after w weeks.

Part B After 10 weeks, you and your friend use all of the money and buy the bike. How much does the bike cost? Who pays more towards the cost of the bike? Explain your reasoning.

34 Your friend evaluated $3 + x^2 \div y$ when $x = -2$ and $y = 4$.

$$\begin{aligned} 3 + x^2 \div y &= 3 + (-2^2) \div 4 \\ &= 3 - 4 \div 4 \\ &= 3 - 1 \\ &= 2 \end{aligned}$$

What should your friend do to correct his error?

- A. Divide 3 by 4 before subtracting.
- B. Square -2 , then divide.
- C. Divide -2 by 4, then square.
- D. Subtract 4 from 3 before dividing.

4

Cumulative Practice

35. Which equation represents the word sentence?

The quotient of a number b and 0.3 equals negative 10.

- A. $0.3b = 10$ B. $\frac{b}{0.3} = -10$
 C. $\frac{0.3}{b} = -10$ D. $\frac{b}{0.3} = 10$

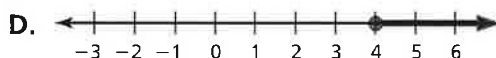
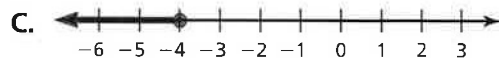
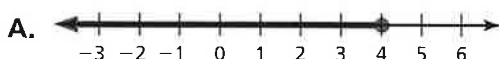
36. What is the value of the expression?

$$-\frac{3}{8} \cdot \frac{2}{5}$$

- F. $-\frac{20}{3}$ G. $-\frac{16}{15}$
 H. $-\frac{15}{16}$ I. $-\frac{3}{20}$

37. Which graph represents the inequality?

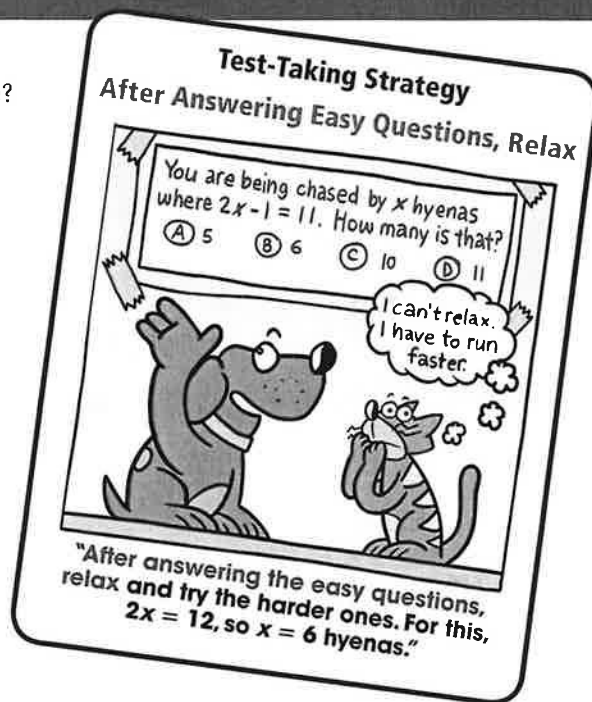
$$\frac{x}{-4} - 8 \geq -9$$



38. Which equation is equivalent to $-\frac{3}{4}x + \frac{1}{8} = -\frac{3}{8}$?

- F. $-\frac{3}{4}x = -\frac{3}{8} - \frac{1}{8}$ G. $-\frac{3}{4}x = -\frac{3}{8} + \frac{1}{8}$
 H. $x + \frac{1}{8} = -\frac{3}{8} \cdot \left(-\frac{4}{3}\right)$ I. $x + \frac{1}{8} = -\frac{3}{8} \cdot \left(-\frac{3}{4}\right)$

39. What is the decimal form of $2\frac{5}{8}$?



39. What is the value of the expression when $x = -5$, $y = 3$, and $z = -1$?

$$\frac{x^2 - 3y}{z}$$

A. -34

B. -16

C. 16

D. 34

40. Which expression is equivalent to $9h - 6 + 7h - 5$?

F. $3h + 2$

G. $16h + 1$

H. $2h - 1$

I. $16h - 11$

41. Your friend solved the equation $-96 = -6(x - 15)$.

$$\begin{aligned} -96 &= -6(x - 15) \\ -96 &= -6x - 90 \\ -96 + 90 &= -6x - 90 + 90 \\ -6 &= -6x \\ \frac{-6}{-6} &= \frac{-6x}{-6} \\ 1 &= x \end{aligned}$$

What should your friend do to correct her error?

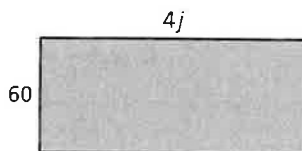
A. First add 6 to both sides of the equation.

B. First subtract x from both sides of the equation.

C. Distribute the -6 to get $6x - 90$.

D. Distribute the -6 to get $-6x + 90$.

42. Which expression does *not* represent the perimeter of the rectangle?



F. $4j(60)$

G. $8j + 120$

H. $2(4j + 60)$

I. $8(j + 15)$



J What is the value of the expression?

$$\frac{5}{12} - \frac{7}{8}$$



K You are selling T-shirts to raise money for a charity. You sell the T-shirts for \$10 each.

Part A You have already sold 2 T-shirts. How many more T-shirts must you sell to raise at least \$500? Explain.

Part B Your friend is raising money for the same charity and has not sold any T-shirts previously. He sells the T-shirts for \$8 each. What are the total numbers of T-shirts he can sell to raise at least \$500? Explain.

Part C Who has to sell more T-shirts in total? How many more? Explain.

43 Which expression has the same value as $-\frac{2}{3} - \left(-\frac{4}{9}\right)$?

A. $-\frac{1}{3} + \frac{1}{9}$

B. $-\frac{2}{3} \times \left(-\frac{1}{3}\right)$

C. $-\frac{1}{3} - \frac{7}{9}$

D. $\frac{3}{2} \div \left(-\frac{1}{3}\right)$

44 You recycle $(6c + 10)$ water bottles. Your friend recycles twice as many water bottles as you recycle. Which expression represents the amount of water bottles your friend recycles?

F. $3c + 5$

G. $12c + 10$

H. $12c + 20$

I. $6c + 12$

45 What is the value of the expression?

$$-\frac{4}{5} + \left(-\frac{2}{3}\right)$$

A. $-\frac{22}{15}$

B. $-\frac{2}{15}$

C. $\frac{2}{15}$

D. $\frac{8}{15}$

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Cumulative Practice

- 46 The school store sells 4 pencils for \$0.80.
What is the unit cost of a pencil?

A. \$0.20 B. \$0.80
C. \$3.20 D. \$5.00

- 47 What is the simplified form of the expression?

$$3x - (2x - 5)$$

F. $x - 5$ G. $x + 5$
H. $5x - 5$ I. $-x - 5$

- 48 Which fraction is equivalent to -1.25 ?

A. $-12\frac{1}{2}$ B. $-1\frac{1}{4}$
C. $-\frac{125}{1000}$ D. $1\frac{1}{4}$

- L What is the value of x for the proportion $\frac{8}{12} = \frac{x}{18}$?



- 49 What inequality is represented by the graph?

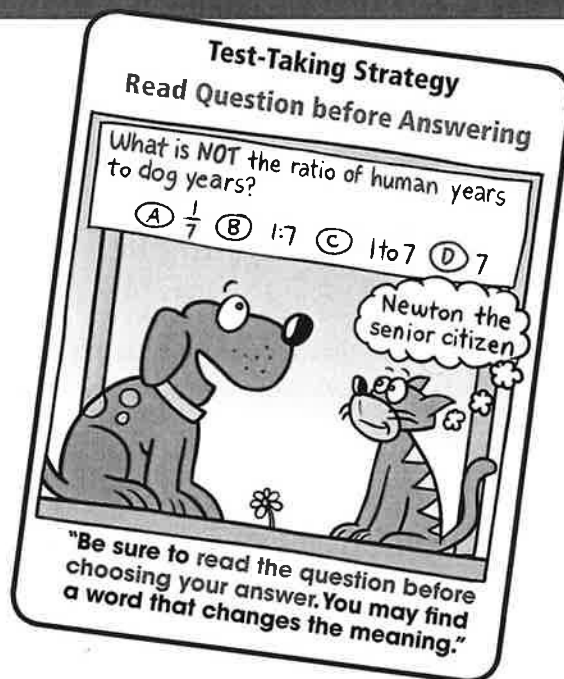


F. $x - 3 < 7$ G. $x + 6 \leq 10$
H. $-5 + x < -1$ I. $x - 8 > -4$

- 50 What is the missing value in the ratio table?

x	$\frac{2}{3}$	$\frac{4}{3}$	$\frac{8}{3}$	$\frac{10}{3}$
y	6	12	24	

A. $24\frac{2}{3}$ B. 30
C. 36 D. 48



51 Which expression shows factoring $12x + 54$ using the GCF?

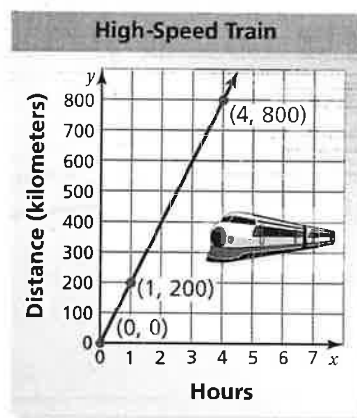
F. $2(6x + 27)$

G. $3(4x + 18)$

H. $6(2x + 9)$

I. $12\left(x + \frac{9}{2}\right)$

52 The distance traveled by a high-speed train is proportional to the number of hours traveled. Which of the following is *not* a valid interpretation of the graph?



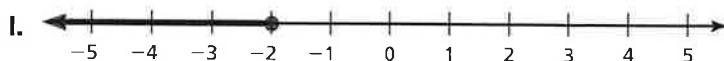
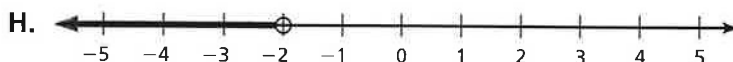
A. The train travels 0 kilometers in 0 hours.

B. The unit rate is 200 kilometers per hour.

C. After 4 hours, the train is traveling 800 kilometers per hour.

D. The train travels 800 kilometers in 4 hours.

53 Which graph represents a number that is at most -2 ?



M A map of the state where your friend lives has the scale $\frac{1}{2}$ in. : 10 mi.



Part A Your friend measured the distance between her town and the state capital on the map. Her measurement was $4\frac{1}{2}$ inches. Based on your friend's measurement, what is the actual distance (in miles) between her town and the state capital? Show your work and explain your reasoning.

Part B Your friend wants to mark her favorite campsite on the map. She knows that the campsite is 65 miles north of her town. What distance on the map (in inches) represents an actual distance of 65 miles? Show your work and explain your reasoning.

N What is the value of the expression $-56 \div (-8)$?



54 The quantities x and y are proportional. What is the missing value in the table?

x	y
$\frac{5}{7}$	10
$\frac{9}{7}$	18
$\frac{15}{7}$	30
4	

A. 38

B. 42

C. 46

D. 56

55 To begin a board game, you place a playing piece at START. On your first three turns, you move ahead 8 spaces, move back 3 spaces, and then move ahead 2 spaces. How many spaces are you from START?

F. 2

G. 3

H. 7

I. 13

6

Cumulative Practice

- 56 A movie theater offers 30% off the price of a movie ticket to students from your school. The regular price of a movie ticket is \$8.50. What is the discounted price that you pay for a ticket?

A. \$2.55 B. \$5.50
C. \$5.95 D. \$8.20

- 57 What is the least value of x for which the inequality is true?



$$16 \geq -2x$$

- 58 You are building a scale model of a park that is planned for a city. The model uses the scale 1 centimeter = 2 meters. The park will have a rectangular reflecting pool with a length of 20 meters and a width of 12 meters. In your scale model, what will be the area of the reflecting pool?

F. 60 cm^2 G. 120 cm^2
H. 480 cm^2 I. 960 cm^2

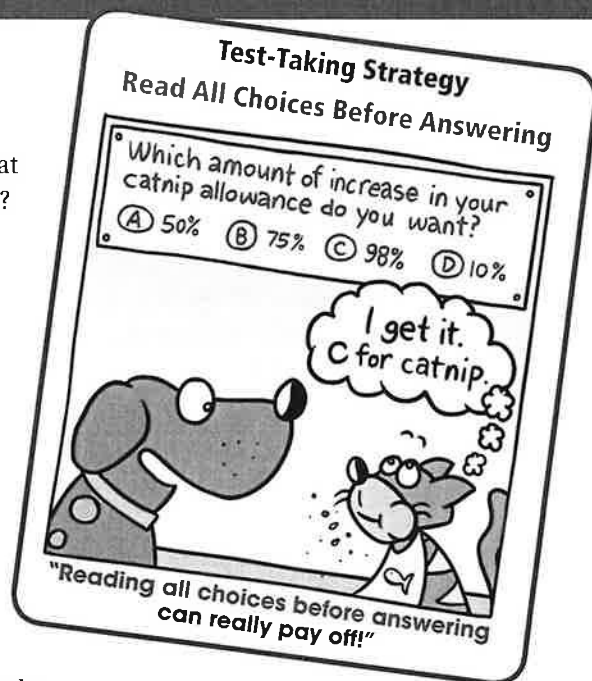
- 59 Which proportion represents the problem?

"17% of a number is 43. What is the number?"

A. $\frac{17}{43} = \frac{n}{100}$ B. $\frac{n}{17} = \frac{43}{100}$
C. $\frac{n}{43} = \frac{17}{100}$ D. $\frac{43}{n} = \frac{17}{100}$

- 60 Which list of numbers is in order from least to greatest?

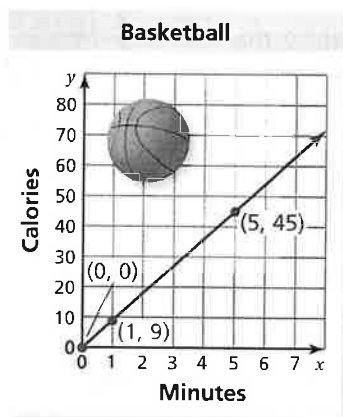
F. $0.8, \frac{5}{8}, 70\%, 0.09$ G. $0.09, \frac{5}{8}, 0.8, 70\%$
H. $\frac{5}{8}, 70\%, 0.8, 0.09$ I. $0.09, \frac{5}{8}, 70\%, 0.8$





P What is the value of $\frac{9}{8} \div \left(-\frac{11}{4}\right)$?

- 60 The number of calories you burn by playing basketball is proportional to the number of minutes you play. Which of the following is a valid interpretation of the graph?



- A. The unit rate is $\frac{1}{9}$ calorie per minute.
- B. You burn 5 calories by playing basketball for 45 minutes.
- C. You do not burn any calories if you do not play basketball for at least 1 minute.
- D. You burn an additional 9 calories for each minute of basketball you play.
- 61 A softball team is ordering uniforms. Each player receives one of each of the items shown in the table.

Item	Jersey	Pants	Hat	Socks
Price (dollars)	x	15.99	4.88	3.99

Which expression represents the total cost (in dollars) when there are 15 players on the team?

- F. $x + 24.86$
- G. $15x + 372.90$
- H. $x + 372.90$
- I. $x + 387.90$

62. Your friend solves the equation. What should your friend do to correct the error that he made?

$$-3(2 + w) = -45$$

$$2 + w = -15$$

$$w = -17$$

- A. Multiply -45 by -3 .
- B. Add 3 to -45 .
- C. Add 2 to -15 .
- D. Divide -45 by -3 .

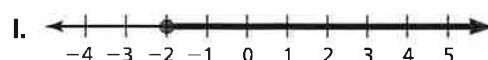
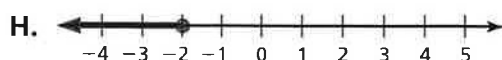
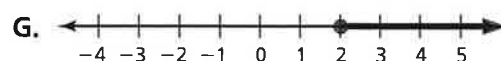
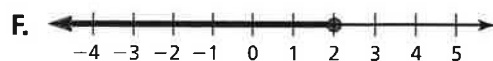
- Q You are comparing the costs of a certain model of ladder at a hardware store and at an online store.



Part A What is the total cost of buying the ladder at each of the stores? Show your work and explain your reasoning.

Part B Suppose that the hardware store is offering 10% off the price of the ladder and that the online store is offering free shipping and handling. Which store offers the lower total cost for the ladder? by how much? Show your work and explain your reasoning.

- 63 Which graph represents the inequality $-5 - 3x \geq -11$.



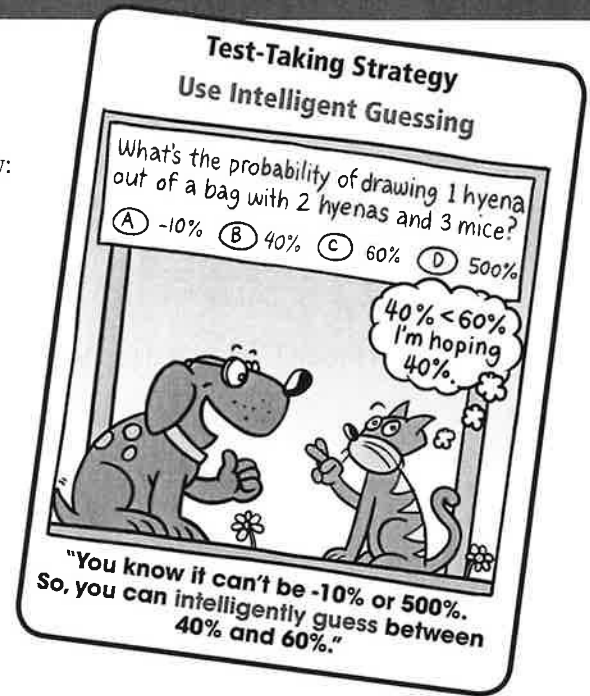
7 Cumulative Practice

64. A school athletic director asked each athletic team member to name his or her favorite professional sports team. The results are below:

- D.C. United: 3
- Florida Panthers: 8
- Jacksonville Jaguars: 26
- Jacksonville Sharks: 7
- Miami Dolphins: 22
- Miami Heat: 15
- Miami Marlins: 20
- Minnesota Lynx: 4
- New York Knicks: 5
- Orlando Magic: 18
- Tampa Bay Buccaneers: 17
- Tampa Bay Lightning: 12
- Tampa Bay Rays: 28
- Other: 6

One athletic team member is picked at random. What is the likelihood that this team member's favorite professional sports team is *not* located in Florida?

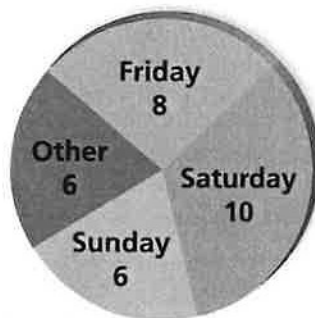
- | | |
|---------------------------------|----------------------------|
| A. certain | B. likely, but not certain |
| C. unlikely, but not impossible | D. impossible |



R Each student in your class voted for his or her favorite day of the week. Their votes are shown in the circle graph:



Favorite Day of the Week



A student from your class is picked at random. What is the probability that this student's favorite day of the week is Sunday?

65 What value makes the equation $11 - 3x = -7$ true?

F. -6

G. $-\frac{4}{3}$

H. 6

I. 54

66 Your friend solved the proportion in the box below.

$$\begin{aligned}\frac{16}{40} &= \frac{p}{27} \\ 16 \cdot p &= 40 \cdot 27 \\ 16p &= 1080 \\ \frac{16p}{16} &= \frac{1080}{16} \\ p &= 67.5\end{aligned}$$

What should your friend do to correct the error that he made?

- A. Add 40 to 16 and 27 to p .
- B. Subtract 16 from 40 and 27 from p .
- C. Multiply 16 by 27 and p by 40.
- D. Divide 16 by 27 and p by 40.

67 Which value is a solution of the inequality?

$$3 - 2y < 7$$

F. -6

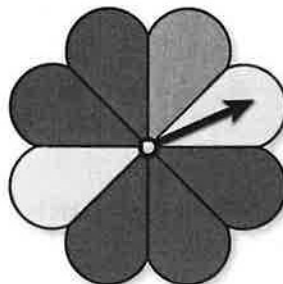
G. -3

H. -2

I. -1



68 A spinner is divided into eight equal sections, as shown. You spin the spinner twice. What is the probability that the arrow will stop in a yellow section both times?



- 68 A pair of running shoes is on sale for 25% off the original price. Which price is closest to the sale price of the running shoes?

A. \$93
B. \$99
C. \$124
D. \$149



- 69 The value of a baseball card was \$6 when it was sold. The value of this card is now \$15. What is the percent increase in the value of the card?

F. 40%
G. 90%
H. 150%
I. 250%

- T You roll a number cube twice. You want to roll two even numbers.



Part A Find the number of favorable outcomes and the number of possible outcomes of each roll.

Part B Find the probability of rolling two even numbers. Explain your reasoning.

- 70 You put \$600 into an account. The account earns 5% simple interest per year. What is the balance after 4 years?

A. \$120
B. \$720
C. \$1800
D. \$12,600

- 71 You are comparing the prices of four boxes of cereal. Two of the boxes contain free extra cereal.

- Box F costs \$3.59 and contains 16 ounces.
- Box G costs \$3.79 and contains 16 ounces, plus an additional 10% for free.
- Box H costs \$4.00 and contains 500 grams.
- Box I costs \$4.69 and contains 500 grams, plus an additional 20% for free.

Which box has the least unit cost?

F. Box F
G. Box G
H. Box H
I. Box I

8

Cumulative Practice

72 Which of the ratios form a proportion?

- A. 5 to 2 and 4 to 10
- B. 2 : 3 and 7 : 8
- C. 3 to 2 and 15 to 10
- D. 12 : 8 and 8 : 4

73 A student scored 600 the first time she took the mathematics portion of a college entrance exam. The next time she took the exam, she scored 660. Her second score represents what percent increase over her first score?

- F. 9.1%
- G. 10%
- H. 39.6%
- I. 60%

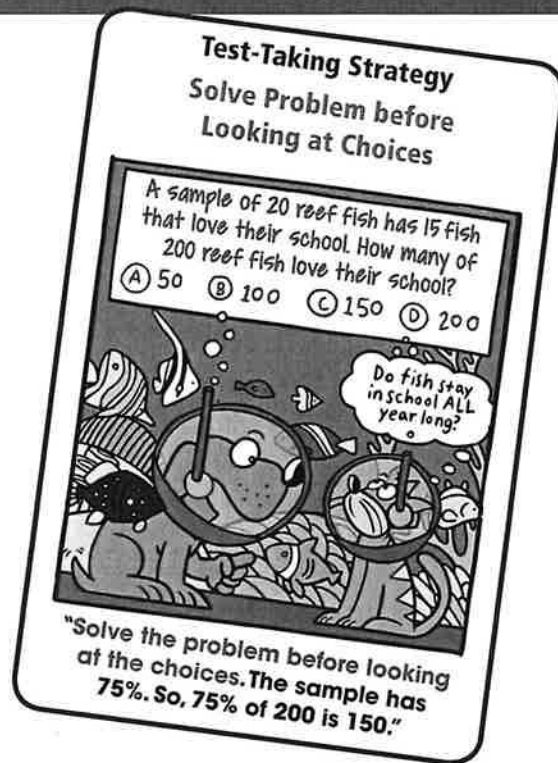
74 You ask 100 randomly chosen students to name their favorite food. There are 1250 students in the school. Based on this sample, what is the number of students in the school whose favorite food is chicken?

Favorite Food	
Pizza	38
Tacos	36
Chicken	8
Other	18

- A. 100
- B. 225
- C. 450
- D. 475

75 Which value of p makes the equation $p + 6 = 5$ true?

- F. -1
- G. 1
- H. 11
- I. 30



- 76 The table shows the costs for four cans of tomato soup. Which can has the lowest cost per ounce?

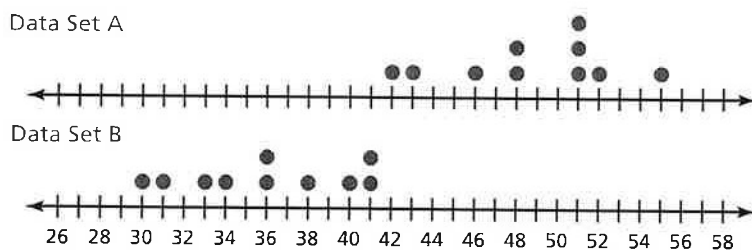
	Cost (dollars)	Number of Ounces
Can A	1.95	26
Can B	0.72	8
Can C	0.86	10.75
Can D	2.32	23.2

- A. Can A
B. Can B
C. Can C
D. Can D

- 77 What value of y makes the equation $-3y = -18$ true?



- 77 The double dot plot shows the values in two data sets. Which sentence best represents the difference in the measures of center as a multiple of the measure of variation?



- F. The difference of the means is about 3.3 times the MAD.
G. The difference of the means is about 3.8 times the MAD.
H. The difference of the means is 36 times the MAD.
I. The difference of the means is 48.7 times the MAD.

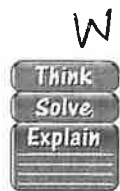


✓ What is the missing value in the ratio table?

x	y
$\frac{2}{3}$	5
2	15
$\frac{8}{3}$	
8	60

78 You are selling tomatoes. What is the minimum number of pounds of tomatoes you need to sell to earn at least \$44?

- A. 11 B. 12
C. 40 D. 176



W You and a group of friends want to know how many students in your school prefer science. There are 900 students in your school. Each person randomly surveys 20 students. The table shows the results. Which subject do students at your school prefer?

	Favorite Subject			
	English	Math	Science	History
You	4	5	6	5
Friend A	2	4	7	7
Friend B	7	4	8	1
Friend C	3	6	5	6
Friend D	6	7	2	5

Part A Use each sample to make an estimate for the number of students in your school who prefer science.

Part B Describe the variation of the estimates.

Part C Use the samples to make one estimate for the number of students who prefer science in your school.

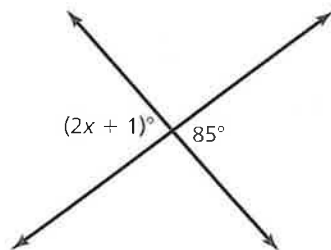
9

Cumulative Practice

79. To make 6 servings of soup, you need 5 cups of chicken broth. You want to know how many servings you can make with 2 quarts of chicken broth. Which proportion should you use?

A. $\frac{6}{5} = \frac{2}{x}$ B. $\frac{6}{5} = \frac{x}{2}$
 C. $\frac{6}{5} = \frac{x}{8}$ D. $\frac{5}{6} = \frac{x}{8}$

80. What is the value of x ?



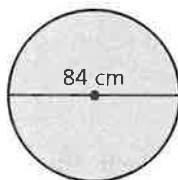
81. Your mathematics teacher described an inequality in words.

"5 less than the product of 7 and an unknown number is greater than 42."

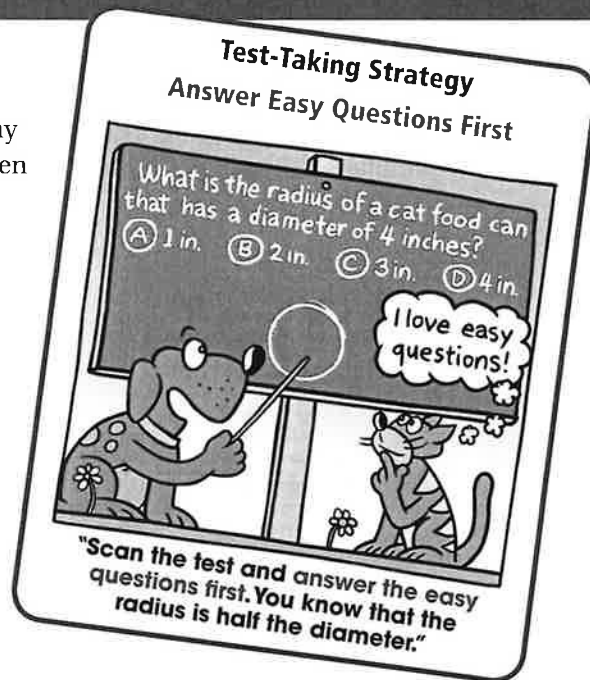
Which inequality matches your mathematics teacher's description?

- F. $7n - 5 < 42$ G. $(7 - 5)n > 42$
 H. $5 - 7n > 42$ I. $7n - 5 > 42$

82. What is the approximate area of the circle below? (Use $\frac{22}{7}$ for π .)



- A. 132 cm^2 B. 264 cm^2
 C. 5544 cm^2 D. $22,176 \text{ cm}^2$



- 82 You have a 50% chance of selecting a blue marble from Bag A and a 20% chance of selecting a blue marble from Bag B. Use the provided simulation to answer the question, "What is the estimated probability of selecting a blue marble from both bags?"

The digits 1 through 5 in the tens place represent selecting a blue marble from Bag A. The digits 1 and 2 in the ones place represent selecting a blue marble from Bag B.

52	66	73	68	75	28	35	47	48	02
16	68	49	03	77	35	92	78	06	06
58	18	89	39	24	80	32	41	77	21
32	40	96	59	86	01	12	00	94	73
40	71	28	61	01	24	37	25	03	25

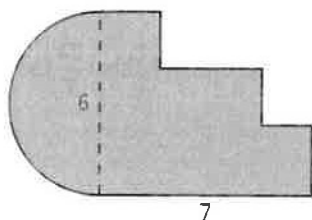
- F. 12% G. 16%
H. 24% I. 88%

- 83 Which proportion represents the problem?

"What number is 12% of 125?"

- A. $\frac{n}{125} = \frac{12}{100}$ B. $\frac{12}{125} = \frac{n}{100}$
C. $\frac{125}{n} = \frac{12}{100}$ D. $\frac{12}{n} = \frac{125}{100}$

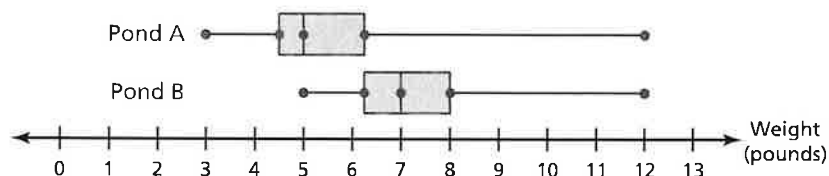
- 84 What is the approximate perimeter of the figure below? (Use 3.14 for π .)



- 84 A savings account earns 2.5% simple interest per year. The principal is \$850. What is the balance after 3 years?

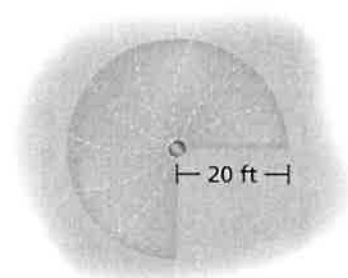
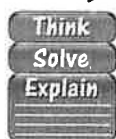
- F. \$63.75 G. \$871.25
H. \$913.75 J. \$7225

85. Two ponds each contain about 400 fish. The double box-and-whisker plot represents the weights of a random sample of 12 fish from each pond. Which statement about the measures of center and variation is true?



- A. The variation in the samples is about the same, but the sample from Pond A has a greater median.
- B. The variation in the samples is about the same, but the sample from Pond B has a greater median.
- C. The measures of center and variation are about the same for both samples.
- D. Neither the measures of center nor variation are the same for the samples.

86. A lawn sprinkler sprays water onto part of a circular region, as shown below.



- Part A* What is the area, in square feet, of the region that the sprinkler sprays with water? Explain your reasoning. (Use 3.14 for π .)
- Part B* What is the perimeter, in feet, of the region that the sprinkler sprays with water? Explain your reasoning. (Use 3.14 for π .)

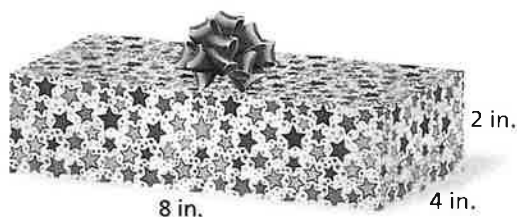
87. What is the least value of x for which $x - 12 \geq -8$ is true?

- F. -20
- G. -4
- H. 4
- I. 5

10

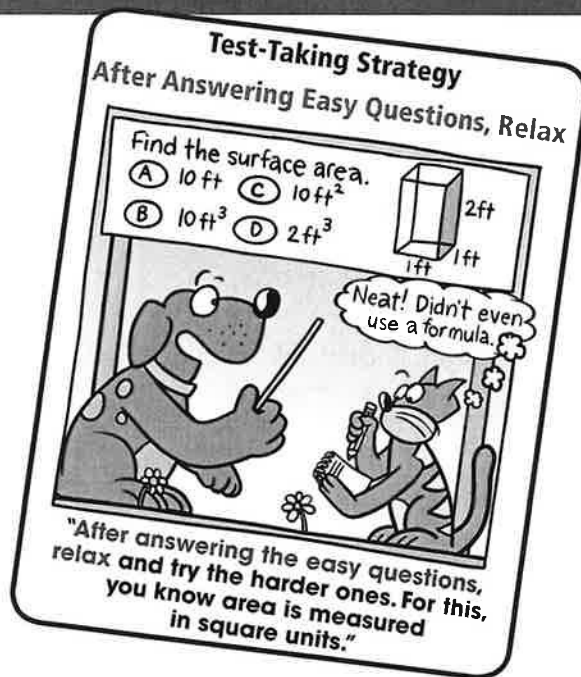
Cumulative Practice

87 A gift box and its dimensions are shown.



What is the least amount of wrapping paper that you need to wrap the box?

- A. 20 in.^2
- B. 56 in.^2
- C. 64 in.^2
- D. 112 in.^2



88 James is getting ready for wrestling season. As part of his preparation, he plans to lose 5% of his body weight. James currently weighs 160 pounds. How much will he weigh, in pounds, after he loses 5% of his weight?

88 How far will the tip of the hour hand of the clock travel in 2 hours? (Use $\frac{22}{7}$ for π .)



- F. 44 mm
- G. 88 mm
- H. 264 mm
- I. 528 mm

89. Which value of x makes the equation true?

$$5x - 3 = 11$$

A. 1.6

B. 2.8

C. 40

D. 70

90. A hockey rink contains 5 face-off circles. Each of these circles has a radius of 15 feet. What is the total area of all the face-off circles? (Use 3.14 for π .)

F. 706.5 ft^2

G. 2826 ft^2

H. 3532.5 ft^2

I. $14,130 \text{ ft}^2$

91. How much material is needed to make the popcorn container?



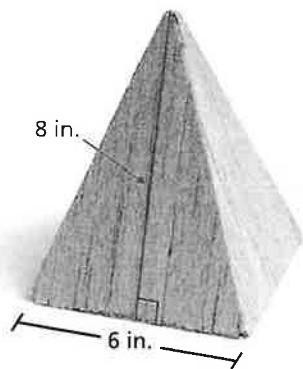
A. $76\pi \text{ in.}^2$

B. $84\pi \text{ in.}^2$

C. $92\pi \text{ in.}^2$

D. $108\pi \text{ in.}^2$

92. What is the surface area of the square pyramid?



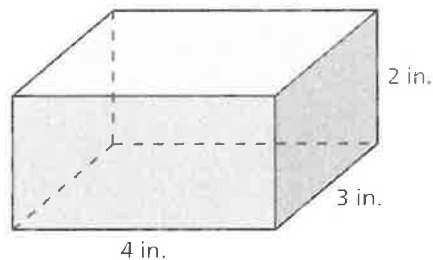
F. 24 in.^2

G. 96 in.^2

H. 132 in.^2

I. 228 in.^2

- BB A rectangular prism and its dimensions are shown.



What is the volume, in cubic inches, of a rectangular prism whose dimensions are three times greater?

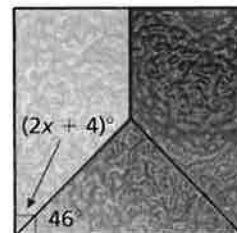
93. What is the value of x ?

A. 20

B. 43

C. 44

D. 65



94. Which of the following are possible angle measures of a triangle?

F. 60° , 50° , 20°

G. 40° , 80° , 90°

H. 30° , 60° , 90°

I. 0° , 90° , 90°

- CC The table shows the costs of buying matinee movie tickets.



Matinee Tickets, x	2	3	4	5
Cost, y	\$9	\$13.50	\$18	\$22.50

Part A Graph the data.

Part B Find and interpret the constant of proportionality for the graph of the line.

Part C How much does it cost to buy 8 matinee movie tickets?

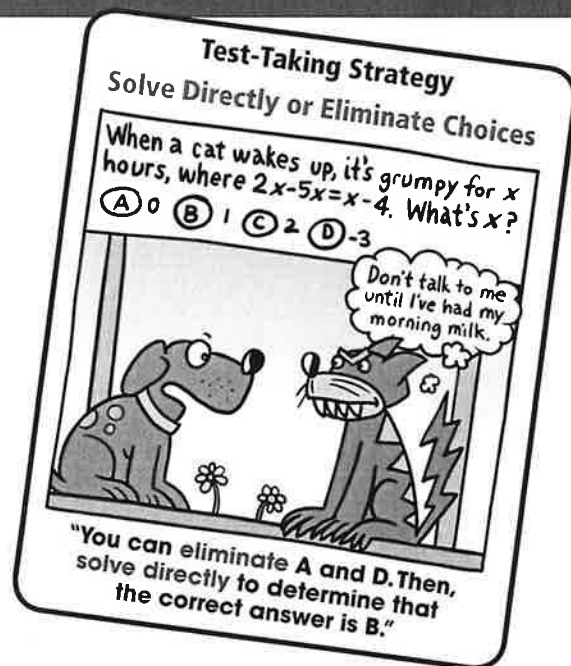
- 95 Which value of x makes the equation true?

$$4x = 32$$

- A. 8 B. 28
C. 36 D. 128

- 96 A taxi ride costs \$3 plus \$2 for each mile driven. You spend \$39 on a taxi. This can be modeled by the equation $2m + 3 = 39$, where m represents the number of miles driven. How long was your taxi ride?

- F. 18 mi G. 21 mi
H. 34 mi I. 72 mi



- 97 Which of the following equations has exactly one solution?

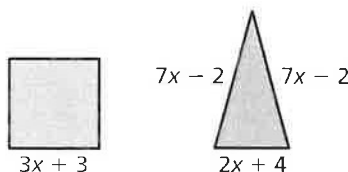
A. $\frac{2}{3}(x + 6) = \frac{2}{3}x + 4$

B. $\frac{3}{7}y + 13 = 13 - \frac{3}{7}y$

C. $\frac{4}{5}\left(n + \frac{1}{3}\right) = \frac{4}{5}n + \frac{1}{3}$

D. $\frac{7}{8}\left(2t + \frac{1}{8}\right) = \frac{7}{4}t$

- DD The perimeter of the square is equal to the perimeter of the triangle. What are the side lengths of the square?



- 98 The formula $d = rt$ relates distance, rate, and time. Solve the formula for t .

F. $t = dr$

G. $t = \frac{d}{r}$

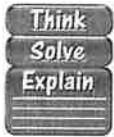
H. $t = d - r$

I. $t = \frac{r}{d}$

99. What is a possible first step to solve the equation $3x + 5 = 2(x + 7)$?

- A. Combine $3x$ and 5.
- B. Multiply x by 2 and 7 by 2.
- C. Subtract x from $3x$.
- D. Subtract 5 from 7.

EE. You work as a sales representative. You earn \$400 per week plus 5% of your total sales for the week.



Part A Last week, you had total sales of \$5000. Find your total earnings. Show your work.

Part B One week, you earned \$1350. Let s represent your total sales that week. Write an equation that you can use to find s .

Part C Using your equation from Part B, find s . Show all steps clearly.

100. In 10 years, your aunt will be 39 years old. Let m represent your aunt's age today. Which equation can you use to find m ?

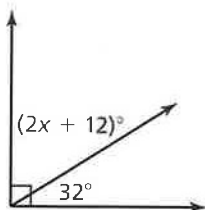
- F. $m = 39 + 10$
- G. $m - 10 = 39$
- H. $m + 10 = 39$
- I. $10m = 39$

101. Which value of y makes the equation $3y + 8 = 7y + 11$ true?

- A. -4.75
- B. -0.75
- C. 0.75
- D. 4.75

102. What is the value of x ?

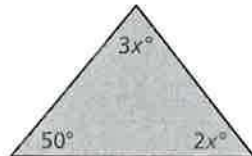
- F. 23
- G. 39
- H. 58
- I. 68



- FF. You have already saved \$35 for a new cell phone. You need \$175 to buy the cell phone. You think you can save \$10 per week. At this rate, how many more weeks will you need to save money before you can buy the new cell phone?



103. What is the greatest angle measure in the triangle?



Sum of angle
measures: 180°

- A. 26° B. 78°
C. 108° D. 138°
104. Which value of x makes the equation $6(x - 3) = 4x - 7$ true?
- F. -5.5 G. -2
H. 1.1 I. 5.5

105. The drawing below shows equal weights on two sides of a balance scale.



What can you conclude from the drawing?

- A. A mug weighs one-third as much as a trophy.
B. A mug weighs one-half as much as a trophy.
C. A mug weighs twice as much as a trophy.
D. A mug weighs three times as much as a trophy.

