

Test, Form 1B

Write the letter for the correct answer in the blank at the right of each question.

1. Which fraction represents the ratio 5 roosters out of 15 chickens in simplest form?
A. $\frac{3}{10}$ B. $\frac{1}{3}$ C. 3 D. $\frac{10}{3}$ 1. **B**

2. Which fraction represents the ratio 2 quarts to 1 gallon in simplest form?
F. $\frac{1}{8}$ G. $\frac{1}{4}$ H. $\frac{1}{2}$ J. 1 2. **H**

3. Alexandro buys 7 pounds of cauliflower for \$10.78. What is the unit price of the cauliflower?
A. \$1.11 per pound
B. \$1.54 per pound
C. \$3.78 per pound
D. \$7.22 per pound 3. **B**

4. Which rate has the same unit rate as 200 jumps in 5 minutes?
F. 120 jumps in 1 minute
G. 240 jumps in 6 minutes
H. 300 jumps in 8 minutes
J. 900 jumps in 10 minutes 4. **G**

5. Which rate is equivalent to 45 miles per hour?
A. 95 kilometers per hour
B. 72 kilometers per hour
C. 56 kilometers per hour
D. 32 kilometers per hour 5. **B**

6. Which measure is the correct metric approximation for 7 feet?
F. 2.1 meters H. 21.3 meters
G. 4.3 meters J. 23 meters 6. **F**

7. The cost of 6 tacos is \$13.20. If the cost is proportional to the number of tacos ordered, which of the following prices is *not* an equivalent rate?
A. 2 tacos for \$4.40
B. 8 tacos for \$17.60
C. 9 tacos for \$19.80
D. 3 tacos for \$6.20 7. **D**

Test, Form 1B *(continued)*

8. LinLo rode her scooter for $\frac{1}{3}$ hour and traveled $2\frac{1}{6}$ kilometers.
What is her average speed in kilometers per hour?

- F. $2\frac{1}{18}$ kilometers per hour H. 12 kilometers per hour
G. $6\frac{1}{2}$ kilometers per hour J. 15 kilometers per hour

8. G

9. The graph of the relationship (dogs, cost) is a line that contains the points (0, 0), (3, 12), and (6, 24). What is the constant of proportionality?

- A. $\frac{1}{9}$ B. $\frac{1}{4}$ C. 4 D. 9

9. C

10. Which statement best describes the relationship in the table?

Months	12	24	36	48
Years	1	2	3	4

- F. The constant of proportionality is 0.
G. The constant of proportionality is 4.
H. The number of months is proportional to the number of years.
J. The number of months is not proportional to the number of years.

10. H

11. Tomas used a scale of 1 inch = 6 feet to construct a scale model of a deck. The deck in the model has a length of 8 inches. What is the actual length of the deck?

- A. 12 inches B. 14 feet C. 28 feet D. 48 feet

11. D

12. At the same time a 5-foot girl casts a 4-foot shadow, a nearby stop sign casts an 8-foot shadow. How tall is the stop sign?

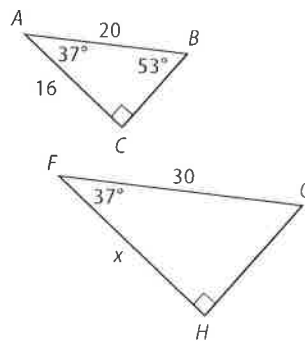
- F. 9 feet G. 10 feet H. 12 feet J. 16 feet

12. G

For Exercises 13 and 14, use similar triangles ABC and FGH .

13. Which statement is *not* true?

- A. $\angle H \cong \angle C$
B. \overline{AC} corresponds to \overline{FH}
C. \overline{BC} corresponds to \overline{GF}
D. $\angle B \cong \angle G$



13. C

14. What is the measure of $\angle H$?

- F. 37° G. 47° H. 53° J. 90°

14. J

Test, Form 1B

Write the letter for the correct answer in the blank at the right of each question.

- Which proportion can be used to find what number is 12% of 360?
 A. $\frac{12}{100} = \frac{360}{x}$ C. $\frac{12}{x} = \frac{x}{360}$
 B. $\frac{88}{100} = \frac{x}{360}$ D. $\frac{12}{100} = \frac{x}{360}$ 1. **D**
- Four is what percent of 20?
 F. $\frac{1}{5}\%$ G. 5% H. 20% J. 40% 2. **H**
- Which proportional relationship can be used to find what percent 50 is of 15?
 A. $\frac{p}{100} = \frac{50}{15}$ C. $\frac{p}{15} = \frac{p}{50}$
 B. $\frac{p}{100} = \frac{15}{50}$ D. $\frac{15}{p} = \frac{100}{50}$ 3. **A**
- If Jethro scores 9 goals out of 20 attempts, what percent of his attempts result in a score?
 F. 11% G. 29% H. 45% J. 48% 4. **H**
- Use the percent proportion to find 75% of 40.
 A. 0.30 B. 3.0 C. 30 D. 300 5. **C**
- Which equation can be used to find what percent 150 is of 400?
 F. $150 = 400p$ H. $(400 - 150) = 150p$
 G. $150 = 250p$ J. $150(400) = p$ 6. **F**
- Which is the best estimate for 32% of 60?
 A. 10 B. 20 C. 28 D. 48 7. **B**
- Which fraction would be best to use to find 20% of 20 mentally?
 F. $\frac{1}{5}$ G. $\frac{1}{4}$ H. $\frac{1}{3}$ J. $\frac{1}{2}$ 8. **F**
- What is 18% of 60?
 A. 0.18 B. 10.8 C. 18.0 D. 49.2 9. **B**
- 20 is 40% of what number?
 F. 8 G. 40 H. 50 J. 800 10. **H**

Test, Form 1B (continued)

11. If 50% of a number is 18, what is 75% of the number?
 A. 4.5 B. 13.5 C. 18 D. 27 11. D
12. Which situation represents a percent of increase?
 F. electrical current from 4.4 amps to 4.09 amps
 G. precipitation of 0.25 inch in May to 0.03 inch in June
 H. salary change from \$11.35 per hour to \$10.68 per hour
 J. school enrollment from 3551 students to 3609 students 12. J
13. What is the percent of change from 10 inches of snowfall to 16 inches of snowfall?
 A. -60% B. -6% C. 60% D. 600% 13. C
14. Maria buys a dress marked \$54. She receives a 30 discount. Which equation can be used to find the sale price of the dress?
 F. $s = 54(0.70)$ H. $s = 54(0.30)$
 G. $s = 54(1.70)$ J. $s = 54(1.30)$ 14. F
15. A swimmer swam 300 meters yesterday and 420 meters today. What is the percent of change? Identify the percent of change as an increase or decrease.
 A. -40%; increase C. 2%; decrease
 B. 20%; decrease D. 40%; increase 15. D
16. Hank deposited \$750 in the bank for 3 years. He earned \$135 in simple interest at the end of the 3 years. What was the annual interest rate?
 F. $6\frac{1}{3}\%$ G. 6% H. 16% J. $66\frac{2}{3}\%$ 16. G
17. Graham plans to borrow \$850 at 4% over 4 years. What amount of simple interest should he expect to pay?
 A. \$34 B. \$68 C. \$136 D. \$212 17. C
18. An investment of \$2000 is compounded annually at 5%. What is the total amount of money after 3 years?
 F. \$231.53 G. \$2300.00 H. \$2315.25 J. \$3500.00 18. H
19. A store makes a profit of \$18 on a blanket after a markup of 30%. What is the selling price of the blanket?
 A. \$6 B. \$54 C. \$60 D. \$78 19. D

Test, Form 1B

Write the letter for the correct answer in the blank at the right of each question.

- Which expression is equivalent to $7(8 + 2)$?
 A. $7(8) \cdot 7(2)$ C. $7(8) + 7(2)$
 B. $(7 + 56) \cdot (7 + 2)$ D. $7(10)$ 1. **C**
- Which expression is equivalent to $3(11 - 5)$?
 F. $(11 + 3) - (5 + 3)$ H. $11(3) - 5(3)$
 G. $(11 - 5) + (11 - 3)$ J. $3(11) + 4(5)$ 2. **H**
- Which expression has the same value as $-8(5 - x)$?
 A. $-8 \cdot 5 + 8 \cdot x$ C. $(-8 + 5) \cdot (-8 + (-x))$
 B. $(8 - 5) \cdot (-8 - x)$ D. $-8 \cdot 5 + 8 \cdot x$ 3. **A**
- Which of the following expressions can be written as $12(y - x)$?
 F. $12y \cdot 12x$ H. $12y - 12x$
 G. $12yx - 12xy$ J. $12y \cdot (-x)$ 4. **H**
- An annual pass for an elementary student at a local museum is \$48. Which expression can be used to mentally compute the total cost of 50 annual passes?
 A. $50(40 - 8)$ C. $40(50 + 8)$
 B. $25 \cdot 2 + 40 \cdot 8$ D. $50(40 + 8)$ 5. **D**
- Which expression has a coefficient of -2 ?
 F. $-2x$ G. $\frac{1}{2} + 4x$ H. $6 + 2x$ J. 2 6. **F**
- Identify the like terms in the expression $8x + 6y + 5y + 8$.
 A. 8, 6, and 5 B. $6y$ and $5y$ C. 8 D. $8x$ and 8 7. **B**
- The volume of a cylinder can be determined by $\frac{1}{3}Bh$, where B is the base area of the cylinder and h is the height. What is the coefficient in the expression $\frac{1}{3}Bh$?
 F. 3 G. $\frac{1}{3}$ H. h J. B 8. **G**
- The total cost for renting a kayak is represented as $25 + 5.50m$. What is the constant in the expression $25 + 5.50m$?
 A. m B. 1.50 C. 25 D. $5.50m$ 9. **C**

Test, Form 1B *(continued)*

10. What is the sum of $(7x + 14) + (x - 12)$?
 F. $8x - 26$ H. $21x - 12x$
 G. $8x + 2$ J. $6x + 2$

10. **G**

11. Which expression corresponds to the model shown?



- A. $6x$ C. $9x$
 B. $3x + 3$ D. $6x + 3$

11. **B**

12. Which pair of monomials has a GCF of $6x$?
 F. $30xy$ and 18 H. 60 and x
 G. $36x$ and $6xz$ J. $6x$ and 60

12. **G**

13. Which expression represents the difference of $(3y + 2) - (y - 1)$?
 A. $5y - 1$ C. $2y + 3$
 B. $4y + 3$ D. $4y - 2$

13. **C**

14. Which expression shows the factored form of $9x + 10$?
 F. $9(x + 10)$ H. $9x + 10$
 G. $3x + 3x \cdot 5 + 5$ J. $3(3x + 10)$

14. **H**

15. What is the greatest common factor of $26w$ and $13wt$?
 A. $13w$ B. t C. $2w$ D. 13

15. **A**

16. Factor $48x + 8$.
 F. $8(6 + 8x)$ H. $8(48x)$
 G. $8(1 + 6x)$ J. $8(6 + x)$

16. **G**

17. Which expression in factored form is equivalent to $\frac{1}{4}x + 20$?
 A. $\frac{1}{4}(40x + 20)$ C. $\frac{1}{4}(x + 80)$
 B. $4(x - 5)$ D. $4(40x - 5)$

17. **C**

Test, Form 1B

Write the letter for the correct answer in the blank at the right of each question.

1. Which property of equality is used to solve $-9.5 = \frac{x}{1.6}$?

- A. distributive C. addition
B. subtraction D. multiplication

1. D

2. Which statement explains how to solve $\frac{9}{2}x = -\frac{27}{100}$?

- F. Add $\frac{9}{2}$ to both sides of the equation.
G. Add $\frac{2}{9}$ to both sides of the equation.
H. Multiply both sides of the equation by $\frac{2}{9}$.
J. Multiply both sides of the equation by $\frac{9}{2}$.

2. H

3. The solution to which equation is graphed on the number line?



- A. $3x + 2.5 = 17.5$ C. $2x - 2.5 = -12.5$
B. $3x - 2.5 = -12.5$ D. $2x - 2.5 = 7.5$

3. C

4. An annual pass covering entrance fees to more than 2,000 national parks costs \$80. If the total income from the annual passes is \$10,600 in one month, which equation can you use to find the number of passes purchased that month?

- F. $80 + p = 10,600$ H. $10,600 - p = 80$
G. $80p = 10,600$ J. $10,600p = 80$

4. G

5. What is the solution to $9x - 15x = 12$?

- A. $x = -2$ B. $x = -\frac{1}{2}$ C. $x = \frac{1}{2}$ D. $x = 2$

5. A

6. What value of m makes the equation $\frac{1}{10} = \frac{4}{5}m$ true?

- F. $m = \frac{1}{4}$ G. $m = \frac{1}{8}$ H. $m = \frac{1}{10}$ J. $m = \frac{1}{40}$

6. G

7. Name the first step in solving $6x + 4 = 40$.

- A. Add 4 to each side. C. Divide each side by $6x$.
B. Subtract 4 from each side. D. Multiply $6x$ to each side.

7. B

8. Solve $8x - 12 = -20$.

- F. $x = -4$ G. $x = -1$ H. $x = 4$ J. $x = 8$

8. G

Test, Form 1B *(continued)*

9. What value of x makes the following equation true?

$$\frac{1}{7}x - 3 = -6$$

- A. $x = -21$ B. $x = -14$ C. $x = -7$ D. $x = 7$

9. **A**

10. The statement, *the difference of a number and -7 is -2* , is represented by which of the following equations?

- F. $7 - n = -2$ H. $n - 7 = -2$
 G. $\frac{n}{7} = -2$ J. $n - (-7) = -2$

10. **J**

11. Which equation can be used to represent the sentence, *two less than the product of three and a number is -9* ?

- A. $2 - 3n = -9$ C. $3n - 9 = 2$
 B. $-9 - 2 = -3n$ D. $3n - 2 = -9$

11. **D**

12. Sonya borrowed 2 fewer than twice the number of books that a Roberto borrowed. Sonya borrowed 5 books. How many books did Roberto borrow?

- F. 2 books G. 4 books H. 8 books J. 12 books

12. **H**

13. Roj buys 5 cups of yogurt. He has coupons for \$0.75 off the regular price of each cup. After using the coupons, the total cost of the yogurt is \$11. What is the regular price of a cup of yogurt?

- A. \$1.60 B. \$2.95 C. \$3.75 D. \$8.00

13. **B**

14. What is the solution of the equation $3x + 9 = 5x - 7$?

- F. $x = -8$ G. $x = -2$ H. $x = -1$ J. $x = 8$

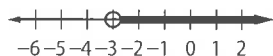
14. **J**

15. Bradford earns \$8 for each car he washes. Which inequality can be used to find out how many cars he must wash to earn at least \$256?

- A. $8p < 256$ C. $8p \geq 256$
 B. $8p \leq 256$ D. $8p > 256$

15. **C**

16. Which inequality is graphed on the number line shown?



- F. $x < -3$
 G. $x \leq -3$
 H. $x \geq -3$
 J. $x > -3$

16. **J**

Test, Form 1B

Write the letter for the correct answer in the blank at the right of each question.

1. Which relation is a function?

- A. $\{(8, 7), (7, 5), (5, 4), (2, 1)\}$
 B. $\{(7, 7), (7, 8), (7, -4), (7, -1)\}$
 C. $\{(9, 7), (7, 8), (9, 4), (5, 2)\}$
 D. $\{(8, 7), (2, 8), (5, 4), (8, -1)\}$

1. **A**

2. Which statement explains why the relation shown in the table is a function?

x	12	24	36	48
y	80	60	40	20

- F. Each domain value is paired with a factor of ten.
 G. The domain and range values are all even numbers.
 H. Each domain value is paired with only one range value.
 J. The domain values increase and the range values decrease.

2. **H**

3. What is the value of $f(4)$ if $f(x) = 3x - 10$?

- A. -3 B. -2 C. 2 D. 7

3. **C**

4. A sports reporter has spent \$210 already this year in stadium entry fees. She purchased an annual stadium entry pass for \$180, plus she pays \$10 per game for a press pass. What is the dependent variable in this scenario?

- F. the amount of money she spends on press passes
 G. the number of times she enters the stadium
 H. the cost of the annual stadium entry pass
 J. the number of press passes she purchases

4. **F**

5. Which ordered pair is a solution to the equation $y = -4x - 9$?

- A. $(-1, 9)$ B. $(-1, -5)$ C. $(1, -5)$ D. $(1, 13)$

5. **B**

6. Which set of ordered pairs can be used to graph the equation $y = x - 2$?

- F. $(-2, -4), (2, 0), (4, 2)$ H. $(-4, -2), (2, 0), (2, 4)$
 G. $(-2, 4), (2, -2), (4, -2)$ J. $(-2, -4), (2, 2), (-4, -2)$

6. **F**

7. Which equation has a slope of 5 and a y -intercept of 0?

- A. $y = 5x - 1$ C. $y = -5x + 1$
 B. $y = -5x - 1$ D. $y = 5x$

7. **D**

Test, Form 1B *(continued)*

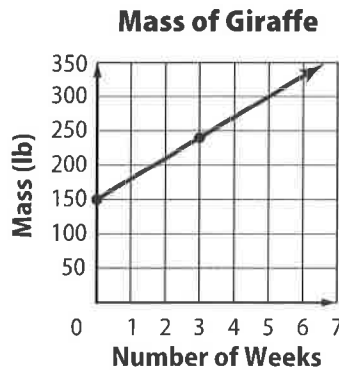
8. What is the constant rate of change between the quantities in the table?

Time (min)	15	30	40	60
Calories (cal)	150	300	400	600

- F. 10 G. 15 H. 100 J. 150

8. **F**

9. The graph shows the relationship between the mass of a giraffe as it relates to the first seven weeks of its life. Which statement identifies and describes the meaning of the constant rate of change for this relationship?



- A. -7 ; The giraffe loses 7 pounds per week.
 B. 7 ; The giraffe gains 7 pounds per week.
 C. 10 ; The giraffe gains 10 pounds per week.
 D. 30 ; The giraffe gains 30 pounds per week.

9. **D**

10. Suppose y varies directly with x and $y = 6$ when $x = 12$. Which equation relates x and y ?

- F. $y = 12x$ G. $y = 6x$ H. $y = 0.5x$ J. $y = 2x$

10. **H**

11. Isabella paid \$230 for 8 porcelain figurines. The animal figurines cost \$25 each and the people figurines cost \$40 each. Which system of equations represents this situation?

- A. $a + p = 8$
 $25a + 40p = 230$
 B. $a + 25p = 8$
 $40a + p = 230$
 C. $a + p = 230$
 $25a + 40p = 8$
 D. $a + 40p = 230$
 $25a + p = 8$

11. **A**

12. At what point do the graphs of the following system of equations intersect?

$$y = x$$

$$y = 2x + 2$$

- F. (1, 1) G. (2, 2) H. (-2, -2) J. (-1, -1)

12. **H**

13. What ordered pair is the solution to the system of equations?

$$y = 8 + x$$

$$y = 2x - 2$$

- A. (0, 8) B. (5, 13) C. (6, 14) D. (10, 18)

13. **D**