

# 1 Chapter 1 Test, Form 2B

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

- Select the algebraic expression that represents the verbal expression *five increased by seven times a number*.  
 A.  $5n + 7$       B.  $n + 12$       C.  $7(n + 5)$       D.  $7n + 5$       1. \_\_\_\_\_
- Evaluate  $(a - y)^2 + 2y^3$  if  $a = 2$  and  $y = -3$ .  
 F.  $-29$       G.  $43$       H.  $79$       J.  $-53$       2. \_\_\_\_\_
- Evaluate  $-|a - 3b|$  if  $a = -2$  and  $b = 6$ .  
 A.  $20$       B.  $-16$       C.  $-20$       D.  $-36$       3. \_\_\_\_\_
- The formula  $A = \frac{180(n - 2)}{n}$  relates the measure  $A$  of an interior angle of a regular polygon to the number of sides  $n$ . If an interior angle measures  $120^\circ$ , find the number of sides.  
 F.  $5$       G.  $6$       H.  $8$       J.  $10$       4. \_\_\_\_\_
- Name the sets of numbers to which  $-28$  belongs.  
 A. integers      C. integers, rationals  
 B. naturals, integers, reals      D. integers, rationals, reals      5. \_\_\_\_\_
- Simplify  $\frac{1}{3}(6x + 3) - 4(3x - 2)$ .  
 F.  $-10x + 9$       G.  $-9x + 9$       H.  $-10x - 1$       J.  $-10x - 7$       6. \_\_\_\_\_
- Name the property illustrated by  $7 \cdot (9 + 1) = (9 + 1) \cdot 7$ .  
 A. Distributive Property  
 B. Commutative Property of Multiplication  
 C. Associative Property of Multiplication  
 D. Commutative Property of Addition      7. \_\_\_\_\_

For Questions 8–11, solve each equation.

- $\frac{2}{5y} = \frac{3}{14}$   
 F.  $\frac{28}{15}$       G.  $\frac{35}{3}$       H.  $\frac{3}{35}$       J.  $\frac{15}{28}$       8. \_\_\_\_\_
- $3|x - 5| = 12$   
 A.  $\{9\}$       B.  $\{1\}$       C.  $\{1, 9\}$       D.  $\emptyset$       9. \_\_\_\_\_
- $3(5x - 1) = 3x + 3$   
 F.  $\frac{1}{2}$       G.  $2$       H.  $-2$       J.  $-\frac{1}{2}$       10. \_\_\_\_\_
- $|y - 8| + 6 = 15$   
 A.  $\{17\}$       B.  $\{-1\}$       C.  $\{17, -1\}$       D.  $\emptyset$       11. \_\_\_\_\_

# 1 Chapter 1 Test, Form 2B *(continued)*

12. Yoshi is 12 years older than his sister. Six years from now, the sum of their ages will be 32. Find Yoshi's present age.  
 F. 10                      G. 18                      H. 4                      J. 16                      12. \_\_\_\_\_

13. Two sides of a triangle are equal in length. The length of the third side is three meters less than the sum of the lengths of the other two sides. Find the length of the longest side of the triangle if its perimeter is 29 meters.  
 A. 8 m                      B. 13 m                      C.  $\frac{55}{3}$  m                      D. 10 m                      13. \_\_\_\_\_

**For Questions 14–18, solve each inequality.**

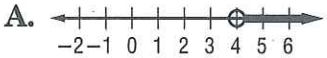
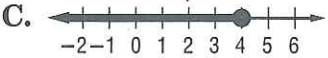
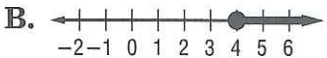
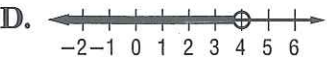
14.  $-3(r - 11) + 15 \geq 9$   
 F.  $\{r \mid r \leq 13\}$                       G.  $\{r \mid r \geq 13\}$                       H.  $\{r \mid r \leq -13\}$                       J.  $\{r \mid r \geq -13\}$                       14. \_\_\_\_\_

15.  $-2 < 4z + 10 \leq 12$   
 A.  $\{z \mid -3 < z \leq 2\}$                       C.  $\left\{z \mid -3 < z \leq \frac{1}{2}\right\}$   
 B.  $\{z \mid -3 < z \leq 3\}$                       D.  $\left\{z \mid -\frac{1}{2} < z \leq \frac{1}{2}\right\}$                       15. \_\_\_\_\_

16.  $2x - 5 \leq 10$  or  $33 - 4x < 5$   
 F.  $\left\{x \mid x \leq \frac{15}{2} \text{ or } x < 7\right\}$                       H.  $\left\{x \mid 7 < x \leq \frac{15}{2}\right\}$   
 G. all real numbers                      J.  $\emptyset$                       16. \_\_\_\_\_

17.  $3|m - 4| > 6$   
 A.  $\{m \mid 2 < m < 6\}$                       C.  $\{m \mid m < 1 \text{ or } m > 7\}$   
 B.  $\{m \mid m < 2 \text{ or } m > 6\}$                       D. all real numbers                      17. \_\_\_\_\_

18.  $|3w - 7| \leq 2$   
 F.  $\left\{w \mid \frac{5}{3} \leq w \leq 3\right\}$                       H.  $\{w \mid -3 \leq w \leq 3\}$   
 G.  $\{w \mid w \leq 3\}$                       J. all real numbers                      18. \_\_\_\_\_

19. Identify the graph of the solution set of  $8.5 > 6.1 + 0.6y$ .  
 A.                       C.   
 B.                       D.                       19. \_\_\_\_\_

20. One number is two less than a second number. If you take one-half of the first number and increase it by the second number, the result is at least 41. Find the least possible value for the second number.  
 F. 30                      G. 28                      H.  $\frac{82}{3}$                       J. 15                      20. \_\_\_\_\_

**Bonus** Solve  $|x| + x > 0$ .                      B: \_\_\_\_\_

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## 2

## Chapter 2 Test, Form 2B

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

1. Find the range of the relation  $\{(-1, 4), (2, 5), (3, 5)\}$ . Then determine whether the relation is a function.

A.  $\{-1, 2, 3\}$ ; function  
 B.  $\{-1, 2, 3\}$ ; not a function  
 C.  $\{4, 5\}$ ; function  
 D.  $\{4, 5\}$ ; not a function

1. \_\_\_\_\_

2. Find  $f(-1)$  if  $f(x) = \frac{x^2 - 6x}{x + 2}$ .

F.  $-5$   
 G.  $-\frac{5}{3}$   
 H.  $\frac{7}{3}$   
 J.  $7$

2. \_\_\_\_\_

3. Find  $f(a)$  if  $f(t) = 2t^2 - t - 2$ .

A.  $2(t + a)^2 - 2t + a - 2$   
 B.  $2(t + a)^2 - 2(t + a) - 2$   
 C.  $2a^2 - a - 2$   
 D.  $4a^2 - 2a - 2$

3. \_\_\_\_\_

4. Which equation is linear?

F.  $x = -2$   
 G.  $y = 3x^2 + 1$   
 H.  $y < 5x - 2$   
 J.  $y^2 = \frac{1}{2}x + 3$

4. \_\_\_\_\_

5. Write  $-3y = -1 + 5x$  in standard form.

A.  $-5x - 3y = 1$   
 B.  $5x + 3y = 1$   
 C.  $y = -\frac{5}{3}x - 1$   
 D.  $3x + 5y - 1 = 0$

5. \_\_\_\_\_

6. Find the  $x$ -intercept and the  $y$ -intercept of the graph of  $4x - 2y = 8$ .

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

6. \_\_\_\_\_

7. Find the slope of a line that passes through  $(2, 4)$  and  $(-7, 8)$ .

A.  $-\frac{4}{9}$   
 B.  $-\frac{4}{5}$   
 C.  $\frac{5}{4}$   
 D.  $-\frac{9}{4}$

7. \_\_\_\_\_

8. What is the slope of the line  $x = -2$ ?

F.  $-2$   
 G.  $0$   
 H.  $\frac{1}{2}$   
 J. undefined

8. \_\_\_\_\_

9. What is the slope of a line that is parallel to the graph of  $2x - 3y = 6$ ?

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

9. \_\_\_\_\_

10. The graph of the line through  $(2, 3)$  that is perpendicular to the line with equation  $x = -1$  also goes through which point?

F.  $(0, -1)$   
 G.  $(-2, 3)$   
 H.  $(2, -4)$   
 J.  $(1, 4)$

10. \_\_\_\_\_

11. Write an equation in slope-intercept form for the line that has a slope of 3 and passes through  $(-1, 2)$ .

A.  $y = 3x - 1$   
 B.  $y = 3x - 5$   
 C.  $y = 5x + 3$   
 D.  $y = 3x + 5$

11. \_\_\_\_\_

12. Write an equation in slope-intercept form for the line that passes through  $(-1, -2)$  and  $(3, -7)$ .

F.  $y = \frac{5}{4}x - \frac{3}{4}$   
 G.  $y = -\frac{4}{5}x - \frac{6}{5}$   
 H.  $y = \frac{4}{5}x - \frac{6}{5}$   
 J.  $y = -\frac{5}{4}x - \frac{13}{4}$

12. \_\_\_\_\_



# 2 Chapter 2 Test, Form 2B *(continued)*

13. Write an equation for the line that passes through (0, -2) and is parallel to the line whose equation is  $3x + 5y = 3$ .

- A.  $y = -\frac{3}{5}x - 2$     B.  $y = 3x - 2$     C.  $y = \frac{3}{5}x + 2$     D.  $y = -3x + 2$     13. \_\_\_\_\_

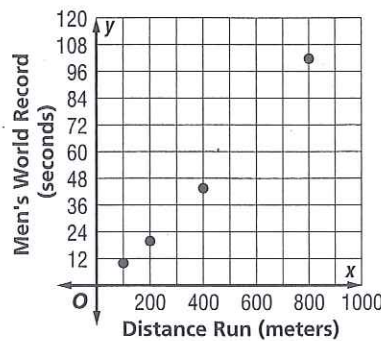
14. The table shows the relationship between the number of hours practiced and the number of free throws made by 6 players. Use a scatter plot to determine which data point is an outlier.

<b>Hours Practiced</b>	1	3	4	6	7	12
<b>Free Throws Made</b>	0	4	6	9	16	18

- F. (1, 0)    G. (3, 4)    H. (7, 16)    J. (12, 18)    14. \_\_\_\_\_

15. Which equation could be a prediction equation for the data points shown in the scatter plot at the right?

- A.  $y = 10x - 6$   
 B.  $y = -\frac{1}{10}x + 6$   
 C.  $y = x + 6$   
 D.  $y = \frac{1}{10}x - 6$



Source: *The World Almanac*

15. \_\_\_\_\_

16. Evaluate  $f\left(-\frac{3}{4}\right)$  if  $f(x) = \lfloor 2x - 1 \rfloor$ .

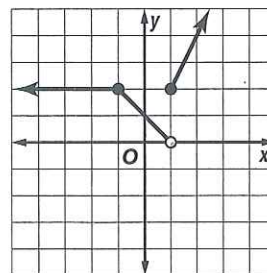
- F. 1    G. -3    H. -1    J. -2    16. \_\_\_\_\_

17. Identify the domain of  $y = 3|x + 2|$ .

- A. all real numbers    C.  $\{y \mid y \geq 0\}$   
 B.  $\{x \mid x \geq 2\}$     D.  $\{y \mid y \geq 2\}$     17. \_\_\_\_\_

18. Which is not part of the definition of the piecewise function shown?

- F. 2 if  $x \leq -1$   
 G.  $x + 1$  if  $-1 < x < 1$   
 H.  $-x + 1$  if  $-1 \leq x < 1$   
 J.  $2x$  if  $x \geq 1$     18. \_\_\_\_\_



19. The graph of the linear inequality  $y \geq 3x - 1$  is the region \_\_\_\_\_ the graph of  $y = 3x - 1$ .

- A. above    B. below    C. on or above    D. on or below    19. \_\_\_\_\_

20. Which point satisfies the inequality  $y < -|x + 2|$ ?

- F. (-1, -1)    G. (1, 0)    H. (-4, -3)    J. (3, 2)    20. \_\_\_\_\_

**Bonus** Find the value of  $k$  so that the slope of the line through (2,  $-k$ ) and (-1, 4) is 4.    B: \_\_\_\_\_

# 3 Chapter 3 Test, Form 2B

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

1. The system of equations  $y = 2x - 3$  and  $y = 4x - 3$  has
- |                          |                               |          |
|--------------------------|-------------------------------|----------|
| A. exactly one solution. | C. infinitely many solutions. | 1. _____ |
| B. no solution.          | D. exactly two solutions.     |          |

Choose the correct description of each system of equations.

- |                               |                               |          |
|-------------------------------|-------------------------------|----------|
| F. consistent and independent | H. consistent and dependent   | 2. _____ |
| G. inconsistent               | J. inconsistent and dependent |          |
2.  $x + 2y = 7$   
 $3x - 2y = 5$
3.  $2x + 3y = 10$   
 $4x + 6y = 20$
3. \_\_\_\_\_

To solve each system of equations, which expression could be substituted for  $x$  into the first equation?

4.  $3x - 5y = 14$   
 $x + 4y = 10$
- |                                 |                                  |          |
|---------------------------------|----------------------------------|----------|
| A. $10 - 4y$                    | C. $4y + 10$                     | 4. _____ |
| B. $\frac{1}{4}x + \frac{5}{2}$ | D. $-\frac{1}{4}x + \frac{5}{2}$ |          |

5.  $2x + 7y = 10$   
 $x - 2y = 15$
- |                        |                        |          |
|------------------------|------------------------|----------|
| F. $\frac{1}{2}x + 15$ | H. $\frac{1}{2}x - 15$ | 5. _____ |
| G. $2y + 15$           | J. $2y - 15$           |          |

6. The first equation of the system is multiplied by 2. By what number would you multiply the second equation to eliminate the  $x$  variable by adding?
- |      |       |      |       |          |
|------|-------|------|-------|----------|
| A. 3 | B. -3 | C. 2 | D. -2 | 6. _____ |
|------|-------|------|-------|----------|
- $6x - 5y = 21$   
 $4x + 7y = 15$

7. The first equation of the system is multiplied by 4. By what number would you multiply the second equation to eliminate the  $y$  variable by adding?
- |      |       |      |       |          |
|------|-------|------|-------|----------|
| F. 5 | G. -5 | H. 2 | J. -2 | 7. _____ |
|------|-------|------|-------|----------|
- $2x + 5y = 16$   
 $8x - 4y = 10$

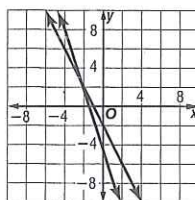
For Questions 8 and 9, solve each system of equations.

8.  $4x - 3y = 14$   
 $y = -3x + 4$
- |              |            |          |
|--------------|------------|----------|
| A. (1, 1)    | C. (5, 2)  | 8. _____ |
| B. (-4, -10) | D. (2, -2) |          |

9.  $4x - 3y = 8$   
 $2x + 5y = -9$
- |             |                        |          |
|-------------|------------------------|----------|
| F. (-2, 1)  | H. (2, 0)              | 9. _____ |
| G. (0, -83) | J. $(\frac{1}{2}, -2)$ |          |

10. Which system of equations is graphed?

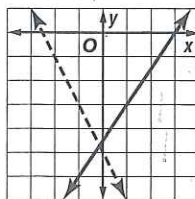
- |                  |                  |
|------------------|------------------|
| A. $2x + y = 1$  | C. $2x + y = 1$  |
| $-3x - y = 3$    | $3x - y = 3$     |
| B. $2x + y = -1$ | D. $2x + y = -1$ |
| $3x - y = 3$     | $-3x - y = 3$    |



10. \_\_\_\_\_

11. Which system of inequalities is graphed?

- |                    |                    |
|--------------------|--------------------|
| F. $2x + y \geq 5$ | H. $2x - y \leq 5$ |
| $3x + 2y \leq 9$   | $3x + 2y < 9$      |
| G. $2x + y > -5$   | J. $-2x + y > 5$   |
| $3x - 2y \geq 9$   | $3x - 2y \leq 9$   |



11. \_\_\_\_\_



**3 Chapter 3 Test, Form 2B** (continued)

12. Find the coordinates of the vertices of the figure formed by the system  $x \geq 0, y \geq -2,$  and  $2x + y \leq 4.$

- A. (3, -2), (0, 4), (0, -2)                      C. (0, 0), (0, 4), (2, 0)  
 B. (-2, 0), (4, 0), (-2, 3)                      D. (-2, 3), (0, 4), (0, -2)

12. \_\_\_\_\_

For Questions 13–15, use the system of inequalities  $y \geq 1, y - x \leq 6,$  and  $x + 2y \leq 6.$

13. Find the coordinates of the vertices of the feasible region.

- F. (-6, 0), (-2, 4), (6, 0)                      H. (-5, 1), (-2, 4), (4, 1)  
 G. (0, 1), (0, 3), (4, 1)                      J. (-5, 1), (-2, 4), (0, 3), (0, 1)

13. \_\_\_\_\_

14. Find the maximum value of  $f(x, y) = 2x + y$  for the feasible region.

- A. 0                      B. 11                      C. 9                      D. 8

14. \_\_\_\_\_

15. Find the minimum value of  $f(x, y) = 2x + y$  for the feasible region.

- F. -10                      G. 0                      H. -9                      J. -4

15. \_\_\_\_\_

16. What is the value of  $z$  in the solution of the system of equations?

$$\begin{aligned} 2x + 3y - z &= 12 \\ 4x - y + z &= -3 \\ -2x + 2y + z &= 3 \end{aligned}$$

- A. -1                      B. 12                      C. 3                      D. -2

16. \_\_\_\_\_

Tickets to a golf tournament are sold in advance for \$40 each, and on the day of the event for \$50 each. For the tournament to occur, at least 2000 of the 8000 tickets must be sold in advance.

17. Let  $a$  represent the number of advance tickets sold and  $d$  represent the number sold on the day of the tournament. Which system of inequalities represents the number of tickets sold?

- F.  $a \geq 2000, d \geq 0, a + d \leq 8000$                       H.  $a \geq 0, d \geq 0, a + d \leq 8000$   
 G.  $a \geq 0, d \geq 0, a + d \leq 2000$                       J.  $a \leq 40, d \leq 50, a + d \leq 2000$

17. \_\_\_\_\_

18. How many advance tickets should be sold to maximize revenue?

- A. 6000                      B. 2000                      C. 4000                      D. 8000

18. \_\_\_\_\_

A local gas station sells low-grade ( $\ell$ ), mid-grade ( $m$ ), and premium ( $p$ ) gasoline. Mid-grade gasoline costs \$0.10 per gallon more than low-grade, and premium gasoline costs \$0.10 per gallon more than mid-grade gasoline. Five gallons of low-grade gas cost \$9.

19. Which system of equations represents the cost of each type of gasoline?

- F.  $5\ell + m = 9, m = \ell + 0.10, p = m + 0.10$   
 G.  $5\ell = 9, m = \ell - 0.10, p = m - 0.10$   
 H.  $5\ell = 9, m = \ell + 0.10, p = m + 0.10$   
 J.  $0.10\ell + 0.10m + 5p = 9, 0.10\ell + m = 0, 0.10m + p = 0$

19. \_\_\_\_\_

20. What is the cost of one gallon of premium gasoline?

- A. \$1.80                      B. \$1.90                      C. \$2.00                      D. \$2.10

20. \_\_\_\_\_

**Bonus** Solve the system of equations.

$$\begin{aligned} a + b &= 6 & c + d &= 4 & f + a &= 2 \\ b + c &= 5 & d + f &= 3 & & \end{aligned}$$

B: \_\_\_\_\_

# 4 Chapter 4 Test, Form 2B

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

1. Solve the matrix equation  $\begin{bmatrix} 2x \\ 3y \end{bmatrix} = \begin{bmatrix} 10 + 2y \\ 13 - x \end{bmatrix}$  for  $x$ .

- A. 1                      B. -1                      C. 7                      D. -7                      1. \_\_\_\_\_

For Questions 2-9, use the matrices to find the following.

$$P = \begin{bmatrix} 3 & 1 \\ -4 & 0 \end{bmatrix} \quad Q = \begin{bmatrix} 4 & 4 \\ 12 & 21 \end{bmatrix} \quad R = \begin{bmatrix} 0 & -\frac{1}{4} \\ 1 & \frac{3}{4} \end{bmatrix} \quad S = \begin{bmatrix} \frac{7}{12} & -\frac{1}{9} \\ -\frac{1}{3} & \frac{1}{9} \end{bmatrix}$$

$$T = \begin{bmatrix} 4 & -5 & 2 \\ 8 & -1 & 3 \end{bmatrix} \quad U = \begin{bmatrix} -9 & 6 & 4 \\ -5 & -2 & 3 \end{bmatrix} \quad V = \begin{bmatrix} 3 & 1 \\ 0 & 2 \\ -4 & 5 \end{bmatrix}$$

2. the dimensions of matrix  $V$   
 F.  $6 \times 1$                       G.  $1 \times 6$                       H.  $2 \times 3$                       J.  $3 \times 2$                       2. \_\_\_\_\_
3. the first row of  $T + U$   
 A.  $[-5 \ 1 \ 6]$                       B.  $[13 \ -11 \ -2]$                       C.  $[3 \ -3 \ 6]$                       D. not possible                      3. \_\_\_\_\_
4. the first row of  $V - T$   
 F.  $[-1 \ -7]$                       G.  $[-7 \ 3 \ 2]$                       H.  $[-1 \ 5 \ -6]$                       J. not possible                      4. \_\_\_\_\_
5. the first row of  $-3T$   
 A.  $[-12 \ -24]$                       B.  $[-12 \ 15 \ -6]$                       C.  $[-24 \ 3 \ -9]$                       D. not possible                      5. \_\_\_\_\_
6. the first row of  $5P - Q$   
 F.  $[11 \ 1]$                       G.  $[9 \ 1]$                       H.  $[19 \ 9]$                       J. not possible                      6. \_\_\_\_\_
7. the first row of  $TV$   
 A.  $[20 \ -16 \ 9]$                       B.  $[20 \ 24]$                       C.  $[4 \ 4]$                       D. not possible                      7. \_\_\_\_\_
8. the inverse of matrix  $R$   
 F.  $P$                       G.  $Q$                       H.  $S$                       J. not possible                      8. \_\_\_\_\_
9. the dimensions of  $ST$   
 A.  $1 \times 6$                       B.  $2 \times 2$                       C.  $3 \times 2$                       D.  $2 \times 3$                       9. \_\_\_\_\_
10. Evening shows cost adults \$7.50 and children \$5.50. Matinee shows cost adults \$5.50 and children \$2.50. Which matrix organizes the information? 10. \_\_\_\_\_
- F. Evening  $\begin{bmatrix} a & c \\ 7.5 & 5.5 \end{bmatrix}$                       G. Evening  $\begin{bmatrix} a & c \\ 7.5 & 7.5 \end{bmatrix}$                       H. Evening  $\begin{bmatrix} a & c \\ 5.5 & 2.5 \end{bmatrix}$                       J. Evening  $\begin{bmatrix} a & c \\ 7.5 & 5.5 \end{bmatrix}$   
 Matinee  $\begin{bmatrix} 5 & 2 \end{bmatrix}$                       Matinee  $\begin{bmatrix} 5.5 & 2.5 \end{bmatrix}$                       Matinee  $\begin{bmatrix} 7.5 & 5.5 \end{bmatrix}$                       Matinee  $\begin{bmatrix} 5.5 & 2.5 \end{bmatrix}$
11. Find the value of  $\begin{vmatrix} 15 & 4 \\ -6 & -2 \end{vmatrix}$ .  
 A. 6                      B. -6                      C. -54                      D. 54                      11. \_\_\_\_\_
12. **GEOMETRY** Find the area of a triangle whose vertices have coordinates  $(2, -5)$ ,  $(6, 1)$ , and  $(-3, -4)$ .  
 F. 34 units<sup>2</sup>                      G. 21 units<sup>2</sup>                      H. 17 units<sup>2</sup>                      J. 42 units<sup>2</sup>                      12. \_\_\_\_\_



# 4 Chapter 4 Test, Form 2B *(continued)*

13. Evaluate  $\begin{vmatrix} 2 & -3 & 1 \\ 4 & 0 & -2 \\ 5 & -1 & 6 \end{vmatrix}$  using diagonals.
- A. -38                      B. 94                      C. -42                      D. 114                      13. \_\_\_\_\_

14. For all matrices  $A_{2 \times 2}$ ,  $B_{2 \times 4}$ , and  $C_{2 \times 2}$ , and scalars  $d$ , which statement is always true?
- F.  $A + dC = dA + C$                       H.  $(CB)d = d(BC)$   
 G.  $d(A + C) = dA + dC$                       J.  $(A + C)B = B(A + C)$                       14. \_\_\_\_\_

15. **MAP** On a town map, the coordinates of the corners of the zoo are  $L(1.2, 4)$ ,  $M(2, 0.8)$ ,  $N(4, 1.6)$ , and  $P(6, 6)$ . The map is dilated so that the perimeter of the zoo is four times its original size. Find the coordinates of  $M'$ .
- A.  $(8, 0.8)$                       B.  $(0.5, 0.1)$                       C.  $(8, 3.2)$                       D.  $(6, 4.8)$                       15. \_\_\_\_\_

16. Triangle  $EFG$  with vertices  $E(-4, -5)$ ,  $F(1, 3)$ , and  $G(4, -1)$  is rotated  $270^\circ$  counterclockwise about the origin. Find the coordinates of  $G'$ .
- F.  $(1, 4)$                       G.  $(-4, 1)$                       H.  $(-1, 4)$                       J.  $(-1, -4)$                       16. \_\_\_\_\_

17. Cramer's Rule is used to solve the system of equations  $5f - 9g = 10$  and  $4f + 3g = -6$ . Which determinant represents the numerator for  $f$ ?
- A.  $\begin{vmatrix} 10 & -9 \\ -6 & 3 \end{vmatrix}$                       B.  $\begin{vmatrix} 5 & -9 \\ 4 & 3 \end{vmatrix}$                       C.  $\begin{vmatrix} 5 & 10 \\ 4 & -6 \end{vmatrix}$                       D.  $\begin{vmatrix} -9 & 10 \\ 3 & -6 \end{vmatrix}$                       17. \_\_\_\_\_

18. Cramer's Rule is used to solve the system of equations  $4x - 5y + z = 11$ ,  $3x - 2y + 2z = -5$ , and  $2x + 6y + 3z = 8$ . Which determinant represents the numerator for  $z$ ?
- F.  $\begin{vmatrix} 11 & 4 & -5 \\ -5 & 3 & -2 \\ 8 & 2 & 6 \end{vmatrix}$                       G.  $\begin{vmatrix} 4 & 11 & -5 \\ 3 & -5 & -2 \\ 2 & 8 & 6 \end{vmatrix}$                       H.  $\begin{vmatrix} 4 & -5 & 11 \\ 3 & -2 & -5 \\ 2 & 6 & 8 \end{vmatrix}$                       J.  $\begin{vmatrix} 4 & -5 & 1 \\ 3 & -2 & 2 \\ 2 & 6 & 3 \end{vmatrix}$                       18. \_\_\_\_\_

19. Which matrix would *not* be used to write a matrix equation for the system of equations  $2c + 5d = -11$  and  $-c + 2d = 10$ ?
- A.  $\frac{1}{9} \begin{bmatrix} 2 & -5 \\ 1 & 2 \end{bmatrix}$                       B.  $\begin{bmatrix} c \\ d \end{bmatrix}$                       C.  $\begin{bmatrix} 2 & 5 \\ -1 & 2 \end{bmatrix}$                       D.  $\begin{bmatrix} -11 \\ 10 \end{bmatrix}$                       19. \_\_\_\_\_

20. Which product would be used to solve the matrix equation  $\begin{bmatrix} 7 & -3 \\ 1 & 1 \end{bmatrix} \cdot \begin{bmatrix} m \\ n \end{bmatrix} = \begin{bmatrix} 2 \\ 6 \end{bmatrix}$  by using inverse matrices?
- F.  $\begin{bmatrix} 1 & 3 \\ -1 & 7 \end{bmatrix} \cdot \begin{bmatrix} 2 \\ 6 \end{bmatrix}$                       G.  $\frac{1}{10} \begin{bmatrix} 1 & 3 \\ -1 & 7 \end{bmatrix} \cdot \begin{bmatrix} 2 \\ 6 \end{bmatrix}$                       H.  $\frac{1}{10} \begin{bmatrix} 7 & -3 \\ 1 & 1 \end{bmatrix} \cdot \begin{bmatrix} 2 \\ 6 \end{bmatrix}$                       J.  $\begin{bmatrix} 7 & -3 \\ 1 & 1 \end{bmatrix} \cdot \begin{bmatrix} 2 \\ 6 \end{bmatrix}$                       20. \_\_\_\_\_

**Bonus** Find the value of  $\begin{vmatrix} -a & b & -c \\ a & -b & c \\ a & 1 & 1 \end{vmatrix}$ .                      B: \_\_\_\_\_



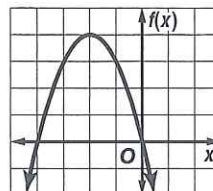
# 5 Chapter 5 Test, Form 2B

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

1. Identify the  $y$ -intercept and the axis of symmetry for the graph of  $f(x) = -3x^2 + 6x + 12$ .  
 A. 2;  $x = -12$       B. 12;  $x = 1$       C.  $-2$ ;  $x = 0$       D.  $-12$ ;  $x = -1$       1. \_\_\_\_\_

2. Identify the quadratic function graphed at the right.

- F.  $f(x) = x^2 - 4x$   
 G.  $f(x) = -x^2 + 4x$   
 H.  $f(x) = -x^2 - 4x$   
 J.  $f(x) = -(x + 4)^2$



3. Determine whether  $f(x) = -5x^2 - 10x + 6$  has a maximum or a minimum value and find that value.  
 A. minimum;  $-1$       B. maximum; 11      C. maximum;  $-1$       D. minimum; 11      2. \_\_\_\_\_

4. Solve  $x^2 = 4x$  by graphing. If exact roots cannot be found, state the consecutive integers between which the roots are located.  
 F.  $-4, 0$       H. between  $-4$  and  $4$   
 G.  $2, -4$       J.  $0, 4$       4. \_\_\_\_\_

5. Solve  $x^2 - 3x = 28$  by factoring.  
 A.  $\{-4, 7\}$       B.  $\{-14, 2\}$       C.  $\{-7, 4\}$       D.  $\{-2, 14\}$       5. \_\_\_\_\_

6. Which quadratic equation has roots 7 and  $-\frac{2}{3}$ ?  
 F.  $2x^2 - 11x - 21 = 0$       H.  $3x^2 - 19x - 14 = 0$   
 G.  $3x^2 + 23x + 14 = 0$       J.  $2x^2 + 11x - 21 = 0$       6. \_\_\_\_\_

7. Simplify  $(15 - 13i) - (-1 + 17i)$ .  
 A.  $16 - 30i$       B.  $16 + 4i$       C.  $16 + 30i$       D. 46      7. \_\_\_\_\_

8. Simplify  $\frac{1 + 2i}{2 - 3i}$ .  
 F.  $\frac{8}{7} + \frac{1}{7}i$       G.  $\frac{8}{7} + i$       H.  $-4 + 7i$       J.  $-\frac{4}{13} + \frac{7}{13}i$       8. \_\_\_\_\_

9. To solve  $4x^2 - 28x + 49 = 25$  by using the Square Root Property, you would first rewrite the equation as \_\_\_\_\_.  
 A.  $(2x - 7)^2 = 25$       C.  $(2x - 7)^2 = \pm 5$   
 B.  $(2x - 7)^2 = 5$       D.  $4x^2 - 28x + 24 = 0$       9. \_\_\_\_\_

10. Find the value of  $c$  that makes  $x^2 + 5x + c$  a perfect square trinomial.  
 F.  $\frac{25}{16}$       G.  $\frac{5}{4}$       H.  $\frac{25}{4}$       J.  $\frac{5}{2}$       10. \_\_\_\_\_