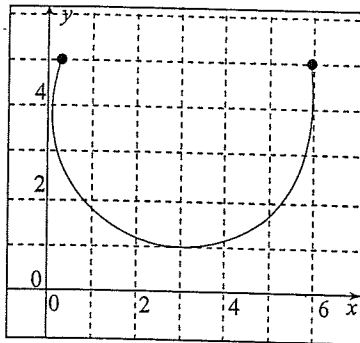


PRACTICE SET 3: INTERMEDIATE ALGEBRA

- Which of the following is a factor of the quadratic equation $x^2 - 2x - 24 = 0$?
 - $x + 4$
 - $x + 6$
 - $x + 2$
 - $x - 4$
 - $x - 2$
- The flight of a projectile is modeled by the function $h = -16t^2 + 48t + 64$, where h is the height above the ground measured in feet, and t represents time in flight measured in seconds. According to this model, the projectile will hit the ground when $t =$?
 - 2
 - 3
 - 4
 - 4.6
 - 5.2
- The range of a function f is the set of all values of y for which $f(x)$ is defined. One of the following sets is the range for the function graphed below. Which set is that range?



- $\{1, 2, 3, 4, 5\}$
 - $\{0.2, 1, 2, 3, 4, 5, 5, 8\}$
 - $\{x \mid 0.2 \leq x \leq 5.0\}$
 - $\{x \mid 1 \leq y \leq 5\}$
 - $\{y \mid 0 \leq y \leq 5\}$
- If $f(x) = 2(x^2 + 7)$, then $f(a + b) =$?
 - $2a^2 + 2b^2 + 14$
 - $2a^2 + 4ab + 2b^2 + 14$
 - $a^2 + 2ab + b^2 + 14$
 - $2a^2 + 2ab + 2b^2 + 14$
 - $a^2 + 4ab + 14$
 - The distance a spring stretches, d , varies directly as the weight, w , attached to it. If a weight of 130 pounds stretches a spring 13 inches from its equilibrium point, what distance will the spring stretch if a weight of 40 pounds is placed on it?
 - 1
 - 2
 - 3
 - 4
 - 5

6. If $c + 4d = 8$ and $8c - 9d = -18$, what is the value of $c + d$?
- F. 0
G. 2
H. 4
J. 5
K. 7
7. If $f(x) = x^2 + 3$ and $g(x) = x - 4$, which of the following shows the value of $(f \circ g)(x)$?
- A. $x^2 - 8x + 13$
B. $x^2 - 8x - 13$
C. $x^2 - 1$
D. $x^2 + 1$
E. $x^2 - 8x + 19$
8. If $\log_a 27 = 3$, what is the value of a ?
- F. 3
G. 5
H. 9
J. 12
K. 24
9. If $b = 4$, which of the following expressions is equivalent to b ?
- A. $\log_{10} 10,000$
B. $\log_{10} 2$
C. $\log_2 8$
D. $\log_{25} 100$
E. $\log_4 400$
10. Let matrix $A = \begin{bmatrix} 3 & 5 \\ -4 & 7 \end{bmatrix}$ and matrix $B = \begin{bmatrix} 2 & -1 \\ 6 & 8 \end{bmatrix}$. Which of the following matrices shows $A + B$?
- F. $\begin{bmatrix} 1 & 6 \\ -10 & -1 \end{bmatrix}$
G. $\begin{bmatrix} 5 & 4 \\ 2 & 15 \end{bmatrix}$
H. $\begin{bmatrix} -5 & 9 \\ 48 & -29 \end{bmatrix}$
J. $\begin{bmatrix} -21 & 35 \\ -13 & 8 \end{bmatrix}$
K. $\begin{bmatrix} 5 & 6 \\ -2 & 1 \end{bmatrix}$

11. Let matrix $A = \begin{bmatrix} -2 & 3 \\ 5 & -8 \end{bmatrix}$ and matrix $B = \begin{bmatrix} -1 & 3 \\ -3 & 4 \end{bmatrix}$. Which of the following matrices shows $B - A$?

A. $\begin{bmatrix} -2 & -3 \\ 27 & 8 \end{bmatrix}$

B. $\begin{bmatrix} -1 & 0 \\ 8 & -12 \end{bmatrix}$

C. $\begin{bmatrix} -3 & 6 \\ 2 & -12 \end{bmatrix}$

D. $\begin{bmatrix} 10 & 21 \\ 27 & 56 \end{bmatrix}$

E. $\begin{bmatrix} 1 & 0 \\ -8 & 12 \end{bmatrix}$

12. Given the function $f(x) = 3x^2 - 18x + 33$, what is the value of $f(x)$ when $x = 2$?

F. 3

G. 6

H. 9

J. 10

K. 12

13. What is the solution to this system of linear equations?

$$4x + 3y = 9$$

$$x - 2y = 5$$

A. (2, -5)

B. (-1, 3)

C. (3, -1)

D. all real numbers

E. no solution

14. Newbreak Coffee Company baristas mix Arabian Mocha Java and Colombian coffees together to make the store's Sunrise Blend. Three pounds of Arabian Mocha Java plus five pounds of Colombian cost \$73. Four pounds of Arabian Mocha Java plus eight pounds of Colombian cost \$110. Let a = price per pound of Arabian Mocha Java and c = price per pound of Colombian. What is the price per pound (a, c) of the two types of coffee?

F. (\$9.75, \$10.50)

G. (\$8.50, \$9.50)

H. (\$12.50, \$10.50)

J. (\$10.50, \$9.75)

K. (\$9.50, \$8.50)

15. Which of the following are the solutions of $6x^2 - 11x - 10 = 0$?

A. $-\frac{2}{3}, \frac{5}{2}$

B. $\frac{5}{3}, -1$

C. $-\frac{1}{3}, 5$

D. $-\frac{5}{3}, 1$

E. $-\frac{5}{2}, \frac{2}{3}$

PRACTICE SET 4: COORDINATE GEOMETRY

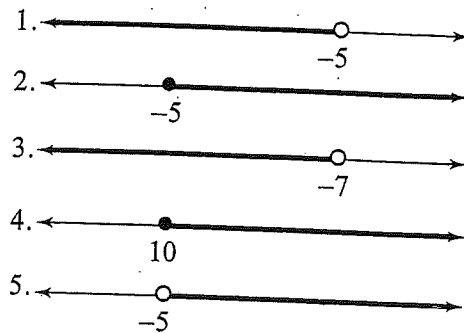
1. In the standard (x,y) coordinate plane, what is the distance between the points $(7,-3)$ and $(-8,6)$?

- A. 9
- B. $\sqrt{82}$
- C. $3\sqrt{34}$
- D. 36
- E. 64

2. Three distinct lines, all contained in a plane, intersect each of the other two lines in exactly one point per line. How many distinct regions are formed by the three lines?

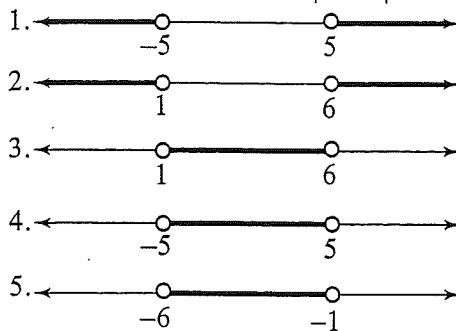
- F. 3
- G. 4
- H. 5
- J. 6
- K. 7

3. Which of the following graphs is the solution to $-2y - 3 < 7$?



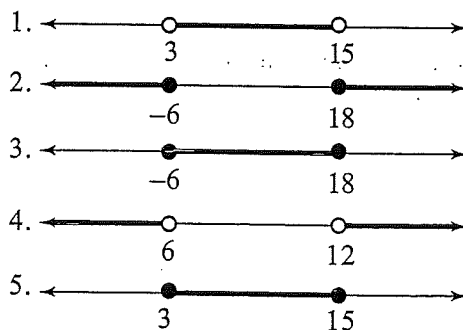
- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

4. Which of the following graphs is the solution to $|2x - 7| > 5$?



- F. 1
- G. 2
- H. 3
- J. 4
- K. 5

5. Which of the following graphs is the solution to $-6 < 2x - 12 < 18$?



- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

6. Which of the following equations shows $x + 3y = 5$ written in slope-intercept form?

F. $y - 0 = -\frac{1}{3}(x - 5)$

G. $y = -\frac{1}{3}x + \frac{5}{3}$

H. $y = 3x + 5$

J. $y = \frac{1}{3}x - \frac{5}{3}$

K. $y - \frac{7}{3} = -\frac{1}{3}(x - 2)$

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

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

B. $\frac{1}{3}$

C. 3

D. 6

E. 9

8. In the standard (x,y) coordinate plane, what is the slope of the line joining the points $(3,-5)$ and $(6,10)$?

F. -4

G. -2

H. 1

J. 3

K. 5

9. In the standard (x,y) coordinate plane, what is the slope of the line given by the equation $2x - 7y = 12$?

A. $-\frac{2}{7}$

B. -2

C. $\frac{2}{7}$

D. $\frac{7}{2}$

E. 7

10. In the standard (x,y) coordinate plane, what is the slope of the line given by the equation $3x + 5y = 8$?

F. -5

G. $-\frac{5}{3}$

H. $-\frac{3}{5}$

J. $\frac{3}{5}$

K. 8

11. In the standard (x,y) coordinate plane, what is the equation of the line that passes through the points $(0,7)$ and $(8,7)$?

A. $y = -7$

B. $x = 7$

C. $y = 7$

D. $x = -7$

E. $y = 8$

12. In the standard (x,y) coordinate plane, the slope, m , of a line that goes through the point $(0,0)$ is -1 . What is the relationship between the x - and y -coordinates of each point on the line?
- F. The x -coordinate is twice the y -coordinate.
 - G. The x -coordinate is one-half the y -coordinate.
 - H. The x - and y -coordinates are the same number.
 - J. The y -coordinate is the negative of the x -coordinate.
 - K. The y -coordinate is one-half the x -coordinate.
13. In the standard (x,y) coordinate plane, the y -coordinate of every point on a line is the same as its corresponding x -coordinate. What is the slope of the line?
- A. -2
 - B. -1
 - C. 1
 - D. 2
 - E. 3
14. Which of the following best describes the graph of the equation $y = -x^2$?
- F. It represents a parabola that opens upward.
 - G. It represents a curved line.
 - H. It represents a parabola that opens downward.
 - J. It crosses the y -axis at $y = -1$.
 - K. It crosses the x -axis at $x = 2$.
15. What is the center of the circle with equation $(x + 3)^2 + (y - 4)^2 = 3$ in the standard (x,y) coordinate plane?
- A. $(-3,4)$
 - B. $(-\sqrt{3},\sqrt{3})$
 - C. $(3,-4)$
 - D. $(\sqrt{3},-\sqrt{3})$
 - E. $(3,4)$

