

1. Solve the inequality. (*Lesson 15*)

$$|16 - 3x| \geq 5$$

A. $\left(-\infty, \frac{11}{3}\right] \cup [7, \infty)$

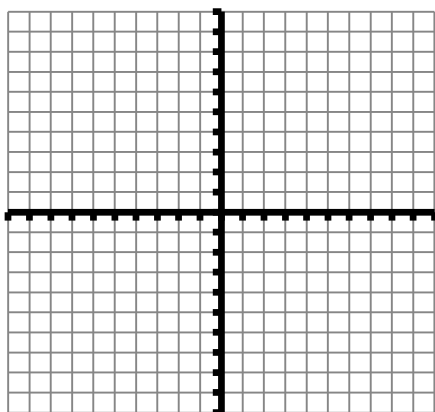
B. $\left(-\infty, \frac{11}{3}\right) \cup (7, \infty)$

C. $\left(-7, -\frac{11}{3}\right)$

D. $\left[-7, -\frac{11}{3}\right]$

E. None of the above

2. Given that the endpoints of a line segment are $A(-6, -9)$ and $B(3, 6)$, find x , such that the point $C(x, 12)$ lies on the perpendicular bisector of the line segment. (each tick mark represents 1 unit) (*Lesson 16*)



A. x is negative

B. x is positive

C. x is zero

D. There is more than one possible value of x

E. x is undefined

3. Describe the set of all points (x, y) in the coordinate plane, such that $xy = 0$. (*Lesson 16*)

A. The set of all points that lie on the x -axis only

B. The set of all points that lie on the y -axis only

C. The set of all points that lie on either axis

D. The set of all points that lie in quadrants III and IV only.

E. The set of all points that lie in quadrants I and III only.

4. Which of the following is the equation for the lower half of a circle? (*Lesson 17*)

A. $x = -\sqrt{9 - y^2}$

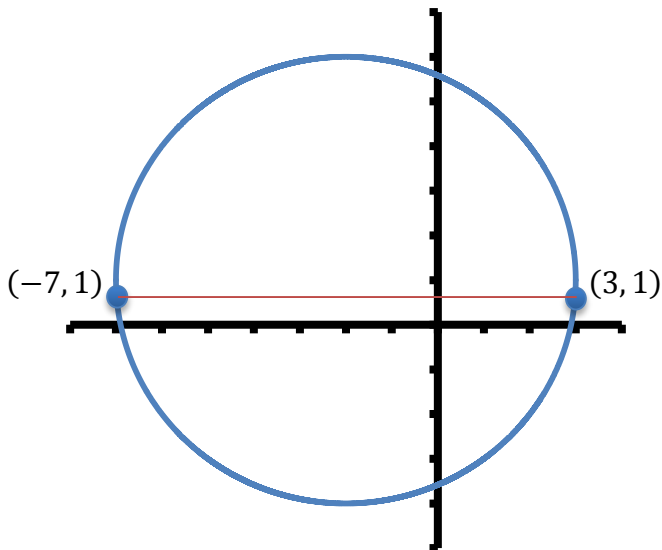
B. $x = \sqrt{9 - y^2}$

C. $y = -\sqrt{9 - x^2}$

D. $y = \sqrt{9 - x^2}$

E. None of the above

5. Find the standard equation of the circle given below. (each tick mark represents 1 unit) (*Lesson 17*)



A. $(x - 2)^2 + (y + 1)^2 = 5$

B. $(x + 2)^2 + (y - 1)^2 = 10$

C. $(x - 2)^2 + (y + 1)^2 = 25$

D. $(x + 2)^2 + (y - 1)^2 = 100$

E. None of the above

6. Which of the following statements is/are true regarding points $A(-3, 5)$ and $B(-3, -4)$?

(Lessons 16 & 18)

- | | |
|------|----------------------------------------------------------------|
| I. | The distance between points A and B is 9 |
| II. | The midpoint between points A and B is $(-3, \frac{1}{2})$ |
| III. | The slope of the line connecting points A and B is 0 |

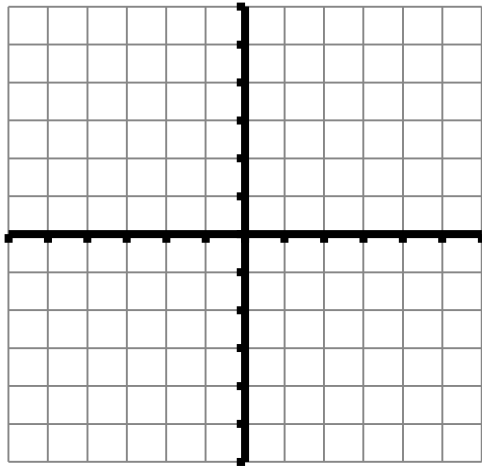
A. I. and II. only

B. I. and III. only

C. II. and III. only

D. I, II, and III are all true

E. I, II, and III are all false



7. Find the general form of the equation of a line with an x -intercept of -5 and a y -intercept of 3 .

(Lesson 18)

A. $5x + 3y = -5$

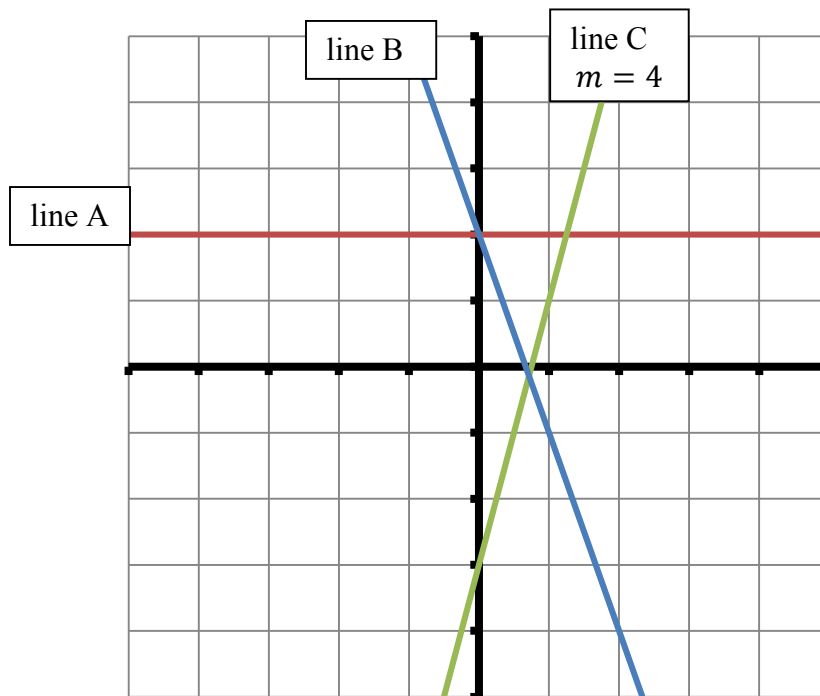
B. $5x - 3y = 15$

C. $3x + 5y = 3$

D. $3x - 5y = -15$

E. None of the above

8. Identify the slope of each of the following lines (A, B, and C), then determine which of the following statements is/are true about those lines. (each tick mark represents 1 unit) (*Lesson 18*)



- I. None of the slopes are positive
 II. None of the lines are perpendicular
 III. The equation of line A is $x = 2$

- A. I. only
 B. II. only
 C. III. only
 D. I, II, and III are all false
 E. None of the above

9. If $f(x) = \frac{\sqrt{x+3}}{x}$, calculate $f(-1)$ and $\frac{1}{f(1)}$. (*Lesson 20*)

- A. $f(-1) = \sqrt{2}, \frac{1}{f(1)} = 2$
 B. $f(-1) = \sqrt{-2}, \frac{1}{f(1)} = -\frac{1}{2}$
 C. $f(-1) = -\frac{1}{\sqrt{2}}, \frac{1}{f(1)} = \frac{1}{4}$
 D. $f(-1) = -\sqrt{2}, \frac{1}{f(1)} = \frac{1}{2}$
 E. None of the above

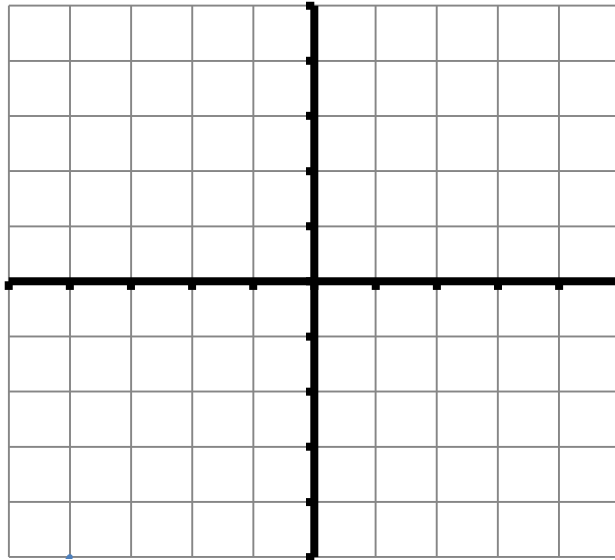
10. Find the domain of $f(x) = \frac{x+9}{x-9}$. Express in interval notation. (*Lesson 20*)

- A. $(-\infty, -9) \cup (-9, \infty)$
- B. $(-\infty, 9) \cup (9, \infty)$
- C. $(-\infty, -3) \cup (-3, 3) \cup (3, \infty)$
- D. $(-\infty, \infty)$
- E. None of the above

11. Which of the following descriptions explains how the graph of $y = \frac{1}{3}f(-x) - 5$ would compare to the graph of $y = f(x)$. (*Lesson 22*)

- A. The graph would be reflected through the y -axis, stretched vertically by a factor of $\frac{1}{3}$, and shifted down 5 units
- B. The graph would be reflected through the x -axis, stretched vertically by a factor of 3, and shifted up 5 units
- C. The graph would be reflected through the y -axis, stretched vertically by a factor of 3, and shifted up 5 units
- D. The graph would be reflected through the x -axis, stretched vertically by a factor of 3, and shifted down 5 units
- E. The graph would be reflected through the y -axis, stretched vertically by a factor of 3, and shifted down 5 units

12. Graph $f(x) = \sqrt{x} - 2$, then determine which of the following statements is/are true.
(each tick mark represents 1 unit) (*Lessons 21 & 22*)



- | | |
|------|--------------------------------------------------------|
| I. | $f(x)$ is neither an even function nor an odd function |
| II. | The function is increasing throughout its domain |
| III. | The domain of the function is $[-2, \infty)$ |

- A. I and II only*
B. I and III only
C. II and III only
D. I, II, and III are all true
E. I, II, and III are all false

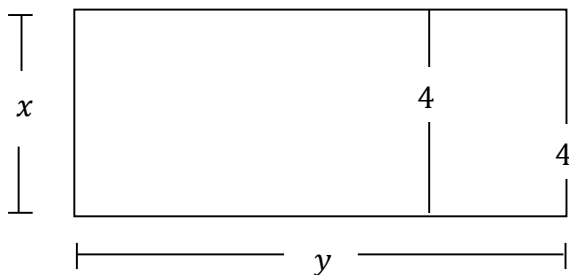
13. Dan is trying to decide between two cars to purchase. Car A costs \$16,750 and requires \$1,350 per year to maintain. Car B costs \$20,125 and requires \$750 per year to maintain. How long will it take (in years) for car B to be more economical (a better value) than car A?

- A. Less than 5 years
B. Between 5 and 6 years
C. Between 6 and 7 years
D. Between 7 and 8 years
E. More than 8 years

14. Temperature readings on the Fahrenheit and Celsius scales are related by the formula $C = \frac{5}{9}(F - 32)$. Determine when the temperature reading on the Celsius scale is half the temperature reading on the Fahrenheit scale.

- A. When the Celsius reading is less than -100°
- B. When the Celsius reading is between -100° and 0°
- C. When the Celsius reading is between 0° and 100°
- D. When the Celsius reading is between 100° and 200°
- E. When the Celsius reading is greater than 200°

15. A farmer is to enclose a rectangular field with fencing. He will also divide the field into two rectangles and leave two openings as shown. The openings will be 4 feet each. The entire field is to contain 600 square feet. If x represents the width and y the length of the field, express the amount of fencing, F , needed as a function of x . Simplify the function.



- A. $F(x) = 300x - \frac{3}{2}x^2$
- B. $F(x) = 2x + \frac{1,200}{x}$
- C. $F(x) = 600x + \frac{3}{2}x$
- D. $F(x) = \frac{1,200}{x} + 3x - 8$
- E. $F(x) = \frac{600}{x} + x$