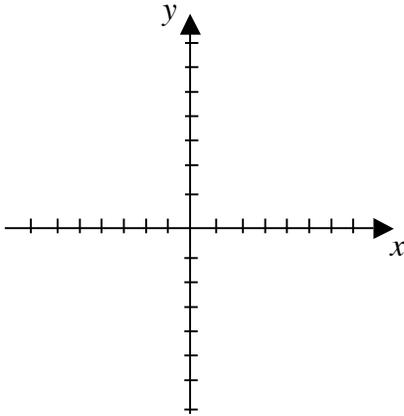


1. Plot the points $A(2, 2)$, $B(2, 3)$, $C(4, 3)$, $D(4, 2)$ on the set of axes below and connect them (in order) with straight segments. Find the area of the resulting figure.



- A. 30 units²
 B. 42 units²
 C. 25 units²
 D. 22 units²
 E. None of the above

2. Solve for x . Choose the answer that best describes the solution(s).

$$|4x + 1| = 9$$

- A. There is one solution.
It is positive.
- B. There are two solutions.
One is positive and one is negative.
- C. There is one solution.
It is negative.
- D. There are two solutions.
They are both positive.
- E. There are two solutions.
They are both negative.

3. Find the radius of the circle having endpoints of a diameter $A(1, 4)$ and $B(6, 2)$.

- A. $\frac{7}{2}$
 B. $\frac{\sqrt{85}}{2}$
 C. $\frac{13}{2}$
 D. $\frac{\sqrt{29}}{2}$
 E. None of the above

4. Express in the form $a + bi$, where a and b are real numbers.

$$\frac{4 - i}{3 + i}$$

A. $\frac{13}{8} - \frac{7}{8}i$

B. $13 + i$

C. $\frac{11}{10} - \frac{7}{10}i$

D. $\frac{4}{3} - i$

E. None of the above

5. Solve the following inequality for x . Express your answer in interval notation.

$$-5 < \frac{1}{3}(2x + 1) < 4$$

A. $(-\frac{3}{2}, 3)$

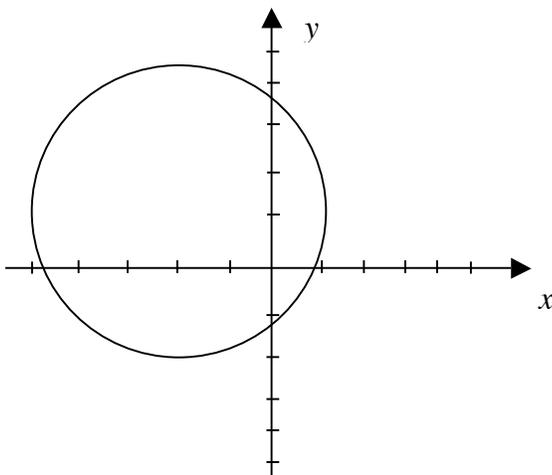
B. $(\frac{3}{2}, \frac{11}{2})$

C. $(-\frac{3}{2}, 8)$

D. $(-\frac{3}{2}, \frac{11}{2})$

E. None of the above

6. Which of the following equations describes the graph given below? Assume the center of the circle is the intersection of the horizontal line given by $y = 1$ and the vertical line given by $x = -2$.



A. $(x - 2)^2 + (y + 1)^2 = 9$

B. $(x + 2)^2 + (y - 1)^2 = 9$

C. $(x - 2)^2 + (y + 1)^2 = 6$

D. $(x + 2)^2 + (y - 1)^2 = 6$

E. $(x + 2) + (y - 1) = 3$

7. Find all real and complex solutions for the following equation:

$$(4x^2 + 25)(x^2 - 16) = 0$$

A. $x = \frac{5}{2}, x = 4$

B. $x = \pm \frac{5}{2}, x = \pm 4i$

C. $x = \pm \frac{5}{2}i, x = \pm 4$

D. $x = \pm \frac{5}{2}, x = \pm 4$

E. None of the above

8. Solve for x . Simplify your answer.

$$2x^2 - 4x - 3 = 0$$

A. $x = 1 \pm \frac{\sqrt{10}}{2}$

B. $x = 1 \pm \frac{\sqrt{2}}{2}i$

C. $x = 1 \pm 2\sqrt{10}$

D. $x = 1 \pm 2\sqrt{2}i$

E. $x = 1 \pm \sqrt{10}$

9. Solve for x . Choose the answer that best describes the solution(s).

$$3 + \sqrt{3x+1} = x$$

A. There is one solution.
It is greater than 5.

B. There is one solution.
It is less than 5.

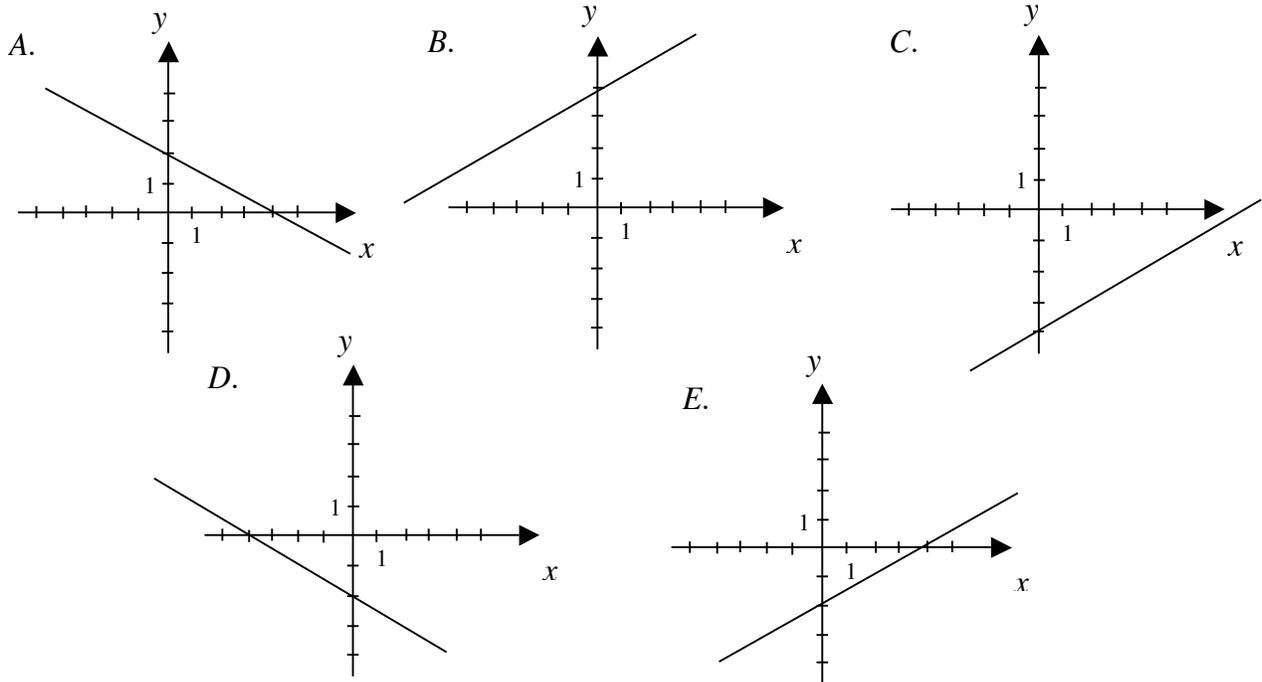
C. There are two solutions.
They are both positive.

D. There are two solutions.
They are both negative.

E. There are two solutions.
One is positive and one is negative.

10. Which of the following depicts the graph of the following equation:

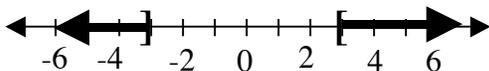
$$x - 2y = 4$$



11. Find a general form of an equation of the line that passes through the point $A(7, -2)$ and has slope $-\frac{1}{3}$.

- A. $x + 3y = -2$
- B. $x + 3y = 19$
- C. $x + 3y = -13$
- D. $x + 3y = 1$
- E. $x + 3y = -19$

12. Express the following graph as an inequality involving an absolute value.



- A. $|x| < 3$
- B. $|x| > 3$
- C. $|x| \leq 3$
- D. $|x| \geq 3$
- E. Not enough information

13. A rectangular garden whose length is twice its width is to be tilled and enclosed with a fence. The cost of preparing the soil is \$3 per square yard and the fence costs \$4 per yard. The total cost is to be \$750. Let x represent the width of the field. Find the equation that would be used to solve for x .

A. $12x^2 + 12x = 750$

B. $4x^2 + 3x = 750$

C. $8x^2 + 18x = 750$

D. $6x^2 + 24x = 750$

E. $3x^2 + 4x = 750$

14. Mary can shovel her driveway alone in 35 minutes. If Bill helps, they can shovel the drive together in 14 minutes. Find the number of minutes it would take Bill to shovel the drive alone. Round your answer to the nearest minute.

A. 28 minutes

B. 30 minutes

C. 23 minutes

D. 42 minutes

E. None of the above

15. The value of a house when it was purchased was \$74,000. Six years later, the value increased to \$88,100. Assume that the value of the house is linearly related to time. If V represents the value of the house and t represents the number of years since the house was purchased, express V in terms of t .

A. $V = 2,350t + 74,000$

B. $V = 0.0004t + 88,100$

C. $V = 0.0004t + 74,000$

D. $V = 2,350t + 88,100$

E. None of the above