Coordinate Geometry

Name: _____   **Date:** _____

1. Circle O has center $(7, -3)$ and diameter $\overline{AB}$. The coordinates of A are $(-2, 4)$. What are the coordinates of B?

   A. $(16, -10)$ B. $(12, -2)$

   C. $(16, -2)$ D. $(12, -10)$

2. If $M(-2, 5)$ is the midpoint of $\overline{AB}$ and the coordinates of A are $(4, 7)$, what are the coordinates of B?

   A. $(1, 6)$ B. $(2, 12)$

   C. $(8, -6)$ D. $(-8, 3)$

3. One endpoint of a segment has coordinates $(16, 3)$. If the coordinates of the midpoint are $(9, 6)$, what are the coordinates of the other endpoint?

   A. $(12.5, 4.5)$ B. $(2, 9)$

   C. $(9, 3)$ D. $(25, 9)$

4. In a circle, diameter $\overline{AB}$ is drawn. The coordinates of A are $(3, -4)$ and the coordinates of the center of the circle are $(1, 1)$. What are the coordinates of B?

   A. $(-1, 6)$ B. $(2, -\frac{3}{2})$

   C. $(1, -6)$ D. $(1, -\frac{5}{2})$

5. What is the midpoint of the line segment connecting the points $(-2, 4)$ and $(5, -2)$?

   A. $\left(\frac{3}{2}, 1\right)$ B. $\left(3, \frac{3}{2}\right)$ C. $\left(\frac{7}{2}, 1\right)$ D. $\left(\frac{3}{2}, 2\right)$

6. Segment AB has endpoints $A(-1, 3)$ and $B(0, 7)$. What is the length of $\overline{AB}$?

   A. $\sqrt{5}$ B. $\sqrt{10}$ C. $\sqrt{17}$ D. $\sqrt{101}$

7. What is the length of the line segment joining the points $(-3, -4)$ and $(2, -5)$?

8. In the accompanying figure, $\triangle ABC$ has coordinates $A(0, 3)$, $B(7, 3)$, and $C(7, 7)$. Find the area of $\triangle ABC$.
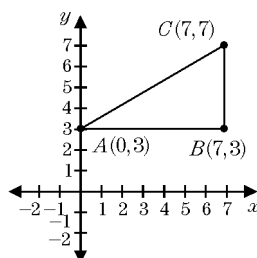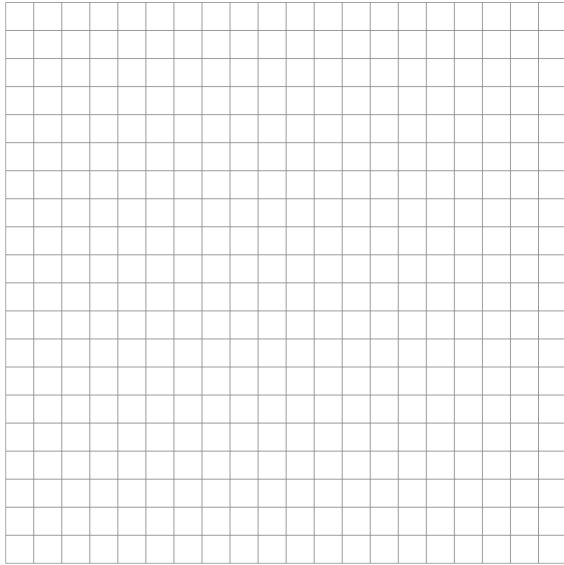

9. If the coordinates of the vertices of $\triangle ABC$ are $A(3, -2)$, $B(7, -2)$, and $C(5, 5)$, what is the area of the triangle?

   A. 10 B. 14 C. 20 D. 28

10. Find the area of the square whose vertices are $(0, 0)$, $(3, 0)$, $(3, 3)$, and $(0, 3)$.

11. If the coordinates of a parallelogram are $Q(3, -2)$, $R(7, -2)$, $S(9, 3)$, and $T(5, 3)$, the area of the parallelogram is

A. 10   B. 20   C. 30   D. 40

12. Triangle ABC has coordinates $A(-6, 2)$, $B(-3, 6)$, and $C(5, 0)$. Find the perimeter of the triangle. Express your answer in simplest radical form. [The use of the grid below is optional.]

13. What is the perimeter of a square whose area is 64?

A. 16   B. 32   C. 64   D. 256

14. The vertices of rectangle $ABCD$ are $A(3, 1)$, $B(-5, 1)$, $C(-5, -3)$, and D. What are the coordinates of D?
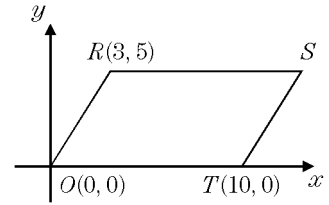
A. $(3, -3)$ B. $(-3, 3)$

C. $(3, 3)$ D. $(-3, -3)$

15. The coordinates of three vertices of parallelogram $ABCD$ are $A(-1, 0)$, $B(4, 0)$, and $C(5, 4)$. What are the coordinates of vertex D?
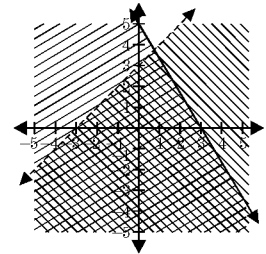
A. $(0, 4)$ B. $(1, 4)$ C. $(0, 3)$ D. $(1, 3)$

16. In the accompanying diagram of parallelogram $ORST$, the coordinates of vertices O, R, and T are $(0, 0)$, $(3, 5)$, and $(10, 0)$, respectively. What are the coordinates of vertex S?

A. $(7, 5)$

B. $(10, 5)$

C. $(13, 5)$

D. $(13, 0)$
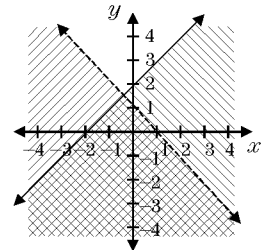
17. Which ordered pair is in the solution set of the system of inequalities shown in the graph?

A. $(0, 0)$

B. $(1, 5)$

C. $(-3, 3)$

D. $(3, 3)$

18. Which ordered pair is in the solution set of the system of inequalities shown in the accompanying graph?
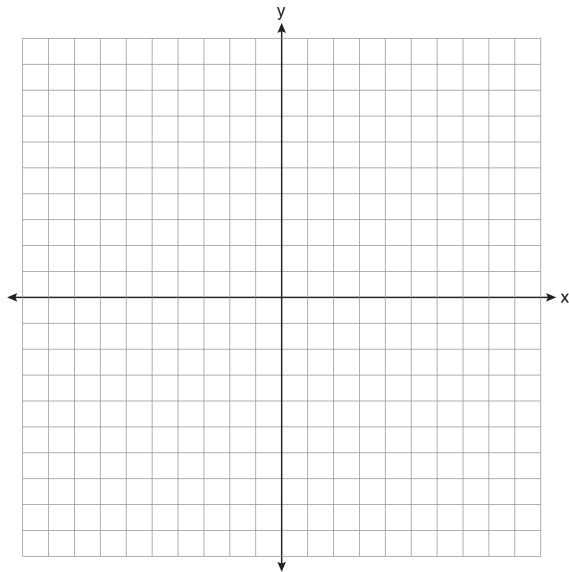
A. $(2, 5)$

B. $(2, -2)$

C. $(4, 3)$

D. $(-4, 3)$

19. Graph the following system of inequalities on the set of axes shown below and label the solution set S.

$$y > -x + 2$$
$$y \leq 2x + 5$$

20. Which is equivalent to $4\sqrt{3}$?

    A. 144   B. $\sqrt{48}$ C. $\sqrt{19}$ D. $\sqrt{16}$

21. The expression $\sqrt{200}$ is equivalent to

    A. $25\sqrt{8}$ B. $100\sqrt{2}$

    C. $2\sqrt{10}$ D. $10\sqrt{2}$

22. The expression $\sqrt{50}$ is equivalent to

    A. $5\sqrt{2}$ B. $25\sqrt{2}$ C. $2\sqrt{5}$ D. $5\sqrt{10}$

23. If the lengths of the legs of a right triangle are 5 and 12, what is the length of the hypotenuse?
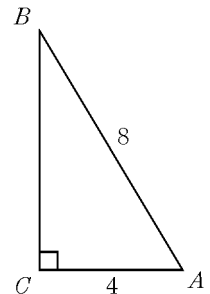
    A. $\sqrt{119}$ B. $\sqrt{17}$ C. 17   D. 13

24. If the length of one leg of a right triangle is 5 and the length of the hypotenuse is 6, then the length of the other leg is
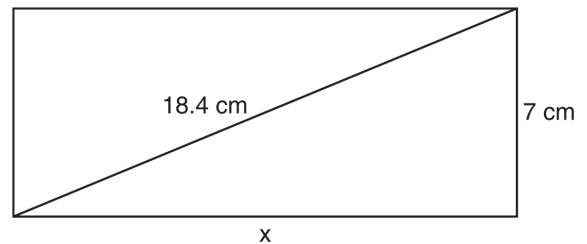
    A. $\sqrt{61}$ B. $\sqrt{11}$ C. 3   D. 4

25. In the accompanying diagram of $\triangle ABC$, a right angle is at C, $AB = 8$, and $AC = 4$.

    A. 12   B. $4\sqrt{3}$

    C. $4\sqrt{5}$ D. 4

26. The rectangle shown below has a diagonal of 18.4 cm and a width of 7 cm.

    To the *nearest centimeter*, what is the length, x, of the rectangle?

    A. 11   B. 17   C. 20   D. 25

27. A woman has a ladder that is 13 feet long. If she sets the base of the ladder on level ground 5 feet from the side of a house, how many feet above the ground will the top of the ladder be when it rests against the house?

A. 8 B. 9 C. 11 D. 12

28. The NuFone Communications Company must run a telephone line between two poles at opposite ends of a lake, as shown in the accompanying diagram. The length and width of the lake are 75 feet and 30 feet, respectively.
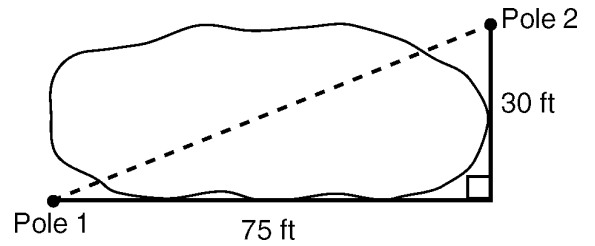
What is the distance between the two poles, to the *nearest foot*?

A. 105 B. 81 C. 69 D. 45

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1.
Answer: A

2.
Answer: D

3.
Answer: B

4.
Answer: A

5.
Answer: A

6.
Answer: C

7.
Answer: $\sqrt{26}$

8.
Answer: 14

9.
Answer: B

10.
Answer: 9

11.
Answer: B

12.
Answer: $15 + 5\sqrt{5}$

13.
Answer: B

14.
Answer: A

15.
Answer: A

16.
Answer: C

17.
Answer: A

18.
Answer: B

19.
Answer: Both inequalities are graphed and shaded correctly, and at least one is labeled, and the solution set is labeled *S*.

20.
Answer: B

21.
Answer: D

22.
Answer: A

23.
Answer: D

24.
Answer: B

25.
Answer: B

26.
Answer: B

27.
Answer: D

28.
Answer: B