Distance and Midpoint Formulas
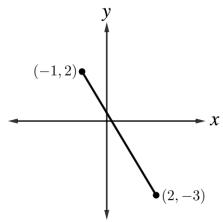
1. What is the length of the line segment in the graph below?

A) $\sqrt{12}$
B) $\sqrt{19}$
C) $\sqrt{34}$
D) $2\sqrt{17}$

2. What is the length of the line segment with endpoints $(12, -4)$ and $(-7, 5)$?
A) 26
B) $\sqrt{26}$
C) $\sqrt{106}$
D) $\sqrt{442}$

3. The coordinates of the endpoints of $\overline{GH}$, in the standard (x, y) coordinate plane, are $(-7, -2)$ and $(3, 4)$. What is the x-coordinate of the midpoint of $\overline{GH}$?
A) -4
B) -2
C) 0
D) 2

4. If the midpoint of the line segment $\overline{AB}$ is $(3, 5)$ and point B has coordinates $(6, 2)$, what are the coordinates of A ?
A) $(0, 8)$
B) $(9, -1)$
C) $(4.5, 3.5)$
D) $(9, 7)$

5. In the standard (x, y) coordinate plane, what is the distance, in coordinate units, from $A\left(4\frac{1}{3}, -4\right)$ to $B\left(-2\frac{5}{9}, -4\right)$?

A) $\frac{8}{9}$

B) $3\frac{5}{9}$

C) $6\frac{8}{9}$

D) $9\frac{4}{9}$

6. Two boats leave the marina and head for docks at different points of the lake. The first boat moors at a dock that is 2 miles north and 3 miles east of the marina. The second boat moors at a dock that is 4 miles south and 2 miles east of the marina. How many miles apart are the boats when they are docked?

A) 6

B) $\sqrt{37}$

C) $\sqrt{53}$

D) 8

7. What is the distance between $(1, -2)$ and $(5, 3)$ in the coordinate plane?

A) 6

B) 11

C) $\sqrt{27}$

D) $\sqrt{41}$

8. A circle in the standard (x, y) coordinate plane has center $C(-3, 4)$ and passes through $A(4, 7)$. Line segment $\overline{AB}$ is a diameter of this circle. What are the coordinates of point B?

A) $(-5, -1)$

B) $(-10, 1)$

C) $(0, 1)$

D) $(6, -2)$

9. In the standard (x, y) coordinate plane, the 3 distinct points A $(2, 7)$, B $(5, -4)$, and C are collinear, and B is equidistant to A and C. What are the coordinates of C?
   A) $(2, 11)$
   B) $(5, -10)$
   C) $(6, -13)$
   D) $(8, -15)$

10. A circle in the standard (x, y) coordinate plane intersects points A $(-1, -1)$ and B (x, y). Line segment $\overline{AB}$ is a diameter of this circle and has length 10. Which of the following could NOT be the coordinates of point B ?
    A) $(-9, -7)$
    B) $(5, -9)$
    C) $(7, -1)$
    D) $(7, 5)$