

Topic: Distance between two points**Question:** What is the distance between the points? $(3, 11)$ $(8, -1)$ **Answer choices:**

A $5\sqrt{5}$

B 13

C $2\sqrt{5}$

D 12



Solution: B

Use the distance formula.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Plugging in the points we've been given, we get

$$d = \sqrt{(8 - 3)^2 + (-1 - 11)^2}$$

$$d = \sqrt{5^2 + (-12)^2}$$

$$d = \sqrt{25 + 144}$$

$$d = \sqrt{169}$$

$$d = 13$$



Topic: Distance between two points**Question:** What is the distance between the points?

$$(7, \sqrt{5})$$

$$(5, -\sqrt{5})$$

Answer choices:

A 2

B 24

C $2\sqrt{5}$

D $2\sqrt{6}$



Solution: D

Use the distance formula.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Plugging in the points we've been given, we get

$$d = \sqrt{(5 - 7)^2 + (-\sqrt{5} - \sqrt{5})^2}$$

$$d = \sqrt{(-2)^2 + (-2\sqrt{5})^2}$$

$$d = \sqrt{4 + [(-2)^2(\sqrt{5})^2]}$$

$$d = \sqrt{4 + (4 \cdot 5)}$$

$$d = \sqrt{24}$$

$$d = \sqrt{4} \cdot \sqrt{6}$$

$$d = 2\sqrt{6}$$



Topic: Distance between two points

Question: Points A , B , and C lie on a line, in that order. If B is at $(6,10)$ and C is at $(9,13)$, what is \overline{AC} (the length of the straight line between A and C), given the following relationship between \overline{BC} (the length of the straight line between B and C) and \overline{AB} (the length of the straight line between A and B)?

$$\overline{BC} = \frac{1}{2} \cdot \overline{AB}$$

Answer choices:

- A $3\sqrt{2}$
- B $3\sqrt{6}$
- C $9\sqrt{2}$
- D $2\sqrt{3}$



Solution: C

First, find \overline{BC} using the distance formula.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

For \overline{BC} we get

$$\overline{BC} = \sqrt{(9 - 6)^2 + (13 - 10)^2}$$

$$\overline{BC} = \sqrt{(3)^2 + (3)^2}$$

$$\overline{BC} = \sqrt{9 + 9}$$

$$\overline{BC} = \sqrt{18}$$

$$\overline{BC} = \sqrt{9} \cdot \sqrt{2}$$

$$\overline{BC} = 3\sqrt{2}$$

Second, find \overline{AB} using the equation we were given.

$$\overline{BC} = \frac{1}{2} \cdot \overline{AB}$$

$$2 \cdot \overline{BC} = \overline{AB}$$

$$2(3\sqrt{2}) = \overline{AB}$$

$$6\sqrt{2} = \overline{AB}$$

Third, add \overline{AB} and \overline{BC} to get \overline{AC} .



$$\overline{AC} = 6\sqrt{2} + 3\sqrt{2}$$

$$\overline{AC} = 9\sqrt{2}$$

