

Build Tasks – Answers



1. Find the distance between $(-1, 2)$ and $(5, 10)$.

Solution

$$\Delta x = 6, \Delta y = 8$$

$$d = \sqrt{6^2 + 8^2} = \sqrt{100} = 10$$

2. Find the distance between $(-4, -3)$ and $(8, 2)$.

Solution

$$\Delta x = 12, \Delta y = 5$$

$$d = \sqrt{12^2 + 5^2} = \sqrt{169} = 13$$

3. Show that the distance from $(2, 1)$ to $(10, 7)$ is 10.

Solution

$$\Delta x = 8, \Delta y = 6$$

$$d = \sqrt{8^2 + 6^2} = \sqrt{100} = 10 - \text{confirmed}$$

4. Show that the distance from $(-3, -4)$ to $(2, 8)$ is 13.

Solution

$$\Delta x = 5, \Delta y = 12$$

$$d = \sqrt{5^2 + 12^2} = \sqrt{169} = 13 - \text{confirmed}$$

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5. One point is $(1, 1)$. Another point is $(x, 5)$. If the distance is 5, find a possible value of x .

Solution

$$\Delta y = 4; \Delta x^2 + 16 = 25 \Rightarrow \Delta x = \pm 3$$

$x = 4$ (or $x = -2$)

7. A student says the distance from $(1, 2)$ to $(4, 6)$ is $3 + 4 = 7$. Explain the mistake.

Solution

Correct: $d = \sqrt{3^2 + 4^2} = 5 \neq 7$.

6. One point is $(-2, 3)$. Another point is $(4, y)$. If the distance is 10, find a possible value of y .

Solution

$$\Delta x = 6; 36 + \Delta y^2 = 100 \Rightarrow \Delta y = \pm 8$$

$y = 11$ (or $y = -5$)

8. A student says the distance from $(-3, 1)$ to $(5, 16)$ is $8^2 + 15^2 = 289$. What did they forget?

Solution

They forgot to take the square root:

$$d = \sqrt{289} = 17$$

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9. Which is longer: the segment from (0, 0) to (8, 15) or the segment from (0, 0) to (7, 24)?

Solution

$$d_1 = \sqrt{8^2 + 15^2} = 17$$

$$d_2 = \sqrt{7^2 + 24^2} = 25 \quad d_2 \text{ is longer.}$$

11. The distance between $(-1, -1)$ and $(7, 5)$ is a whole number. Show why.

Solution

$$\Delta x = 8, \Delta y = 6; d = \sqrt{100} = 10, \text{ whole.}$$

10. Which is longer: the segment from (2, 3) to (8, 11) or the segment from (2, 3) to (7, 15)?

Solution

$$d_1 = \sqrt{6^2 + 8^2} = 10$$

$$d_2 = \sqrt{5^2 + 12^2} = 13 \quad d_2 \text{ is longer.}$$

12. The distance between $(-4, 2)$ and $(1, 14)$ is a whole number. Show why.

Solution

$$\Delta x = 5, \Delta y = 12; d = \sqrt{169} = 13, \text{ whole.}$$