

Distance Formula

Sheet 4

Example: The distance between the points (8, -1) and (t, 2) is 5 units.
Find the value of c.

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

$$5 = \sqrt{(t - 8)^2 + (2 + 1)^2}$$

$$25 = (t - 8)^2 + (3)^2 \Rightarrow 16 = (t - 8)^2 \Rightarrow \pm 4 = t - 8$$

$$\mathbf{t = 4 \text{ or } 12}$$

Find the unknown value with the given endpoints and distance between them.

- 1) (5, 9), (-7, a), distance = 4 units

a = _____

- 3) (-4, 2), (r, -4), distance = 5 units

r = _____

- 5) (c, 5), (2, 2), distance = 10 units

c = _____

- 7) The length of the diagonal of a parallelogram is 13 units. The endpoints of the diagonal are (h, -9) and (5, 3). Find the value of h.

h = _____

- 8) The endpoints of the diagonal of a parallelogram are (-7, -3) and (u, 5) and the length is 8 units. Find the value of u.

u = _____

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$$\mathbf{t = 4 \text{ or } 12}$$

Find the unknown value with the given endpoints and distance between them.

1) (5, 9), (-7, a), distance = 4 units

$$a = \underline{-7 \text{ or } 2}$$

3) (-4, 2), (r, -4), distance = 5 units

$$r = \underline{-4}$$

5) (c, 5), (2, 2), distance = 10 units

$$c = \underline{2}$$

7) The length of the diagonal of a parallelogram is 13 units.
The endpoints of the diagonal are (-9, -9) and (5, 3). Find the value of n.

$$h = \underline{0 \text{ or } 10}$$

8) The endpoints of the diagonal of a parallelogram are (-7, -3) and (u, 5) and the length is 8 units. Find the value of u.

$$u = \underline{-7}$$

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