

Distance Formula

Sheet 1

Example: The distance between the points (4, c) and (0, -2) is 5 units.
Find the value of c.

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

$$5 = \sqrt{(0 - 4)^2 + (-2 - c)^2}$$

$$25 = (-4)^2 + (-2 - c)^2 \Rightarrow 9 = (-2 - c)^2 \Rightarrow \pm 3 = -2 - c$$

$$\mathbf{c = -5 \text{ or } 1}$$

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

1) (7, -5), (d, -1), distance = 4 units

d = _____

2) (h, -3), (1, 9), distance = 13 units

h = _____

3) (6, -4), (0, k), distance = 6 units

k = _____

4) (0, p), (-8, 5), distance = 8 units

p = _____

5) (-7, -7), (-7, n), distance = 15 units

n = _____

6) (g, 9), (8, 9), distance = 9 units

g = _____

7) The length of the diameter of a circle with endpoints (1, -3) and (b, -6) is 5 units.
Find the value of b.

b = _____

8) The endpoints of the diagonal of a parallelogram are (-4, 2) and (-7, z) and the length is 3 units. Find the value of z.

z = _____

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$$\mathbf{c = -5 \text{ or } 1}$$

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

1) (7, -5), (d, -1), distance = 4 units

d = 7

2) (h, -3), (1, 9), distance = 13 units

h = -4 or 6

3) (6, -4), (0, k), distance = 6 units

k = -4

4) (0, p), (-8, 5), distance = 8 units

p = 5

5) (-7, -7), (-7, n), distance = 15 units

n = -22 or 8

6) (g, 9), (8, 9), distance = 9 units

g = -1 or 17

7) The length of the diameter of a circle with endpoints (1, -3) and (b, -6) is 5 units.
Find the value of b.

b = -3 or 5

8) The endpoints of the diagonal of a parallelogram are (-4, 2) and (-7, z) and the length is 3 units. Find the value of z.

z = 2