Name : _____ Score : _____

Distance Formula

Sheet 1

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

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

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

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

$$\mathbf{c = -5}$$

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 = _____

Name : _____ Score : _____

Answer Key

Distance Formula

Sheet 1

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

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

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

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

$$\mathbf{c = -5}$$

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**

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 = **8**

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

g = **–1**

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 = **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**