

## 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

$$d = \underline{\hspace{2cm}}$$

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

$$h = \underline{\hspace{2cm}}$$

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

$$k = \underline{\hspace{2cm}}$$

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

$$p = \underline{\hspace{2cm}}$$

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

$$n = \underline{\hspace{2cm}}$$

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

$$g = \underline{\hspace{2cm}}$$

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

$$b = \underline{\hspace{2cm}}$$

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  $z$ .

$$z = \underline{\hspace{2cm}}$$