Distance Formula

Name _____

Score _____

DF:07

Example : Find the value of k, if the distance between the points (–9, k) and (2, 3) is 11 units.

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

$$11 = \sqrt{(2 + 9)^2 + (3 - k)^2}$$

$$121 = 11^2 + (3 - k)^2 \Rightarrow 0 = (3 - k)^2 \Rightarrow 0 = 3 - k$$

$$\mathbf{k = 3}$$

Find the value of unknown variables from the given endpoints and the distance between them.

1) (m, –3) and (1, 0)

distance = 5 units

m = _____

2) (5, –2) and (5, b)

distance = 8 units

b = _____

3) (–3, u) and (10, –5)

distance = 13 units

u = _____

4) (1, 2) and (p, 8)

distance = 10 units

p = _____

5) (–6, 7) and (h, –9)

distance = 16 units

h = _____

6) (n, –2) and (–3, –2)

distance = 3 units

n = _____

Distance Formula

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Answer key

DF:07

Example : Find the value of k, if the distance between the points (–9, k) and (2, 3) is 11 units.

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

$$11 = \sqrt{(2 + 9)^2 + (3 - k)^2}$$

$$121 = 11^2 + (3 - k)^2 \Rightarrow 0 = (3 - k)^2 \Rightarrow 0 = 3 - k$$

$$\mathbf{k = 3}$$

Find the value of unknown variables from the given endpoints and the distance between them.

1) (m, –3) and (1, 0)

distance = 5 units

m = **–3 or 5**

2) (5, –2) and (5, b)

distance = 8 units

b = **–10 or 6**

3) (–3, u) and (10, –5)

distance = 13 units

u = **–5**

4) (1, 2) and (p, 8)

distance = 10 units

p = **–7 or 9**

5) (–6, 7) and (h, –9)

distance = 16 units

h = **–6**

6) (n, –2) and (–3, –2)

distance = 3 units

n = **–6 or 0**