

Worksheet Chapter 7: Coordinates

QUESTION 1

Calculate the distance between point P and point Q. **PL 2****EXAMPLE**

P(1, 5), Q(6, 8)

Distance

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

$$\begin{aligned} PQ &= \sqrt{(6 - 1)^2 + (8 - 5)^2} \\ &= \sqrt{5^2 + 3^2} \\ &= \sqrt{25 + 9} \\ &= \sqrt{34} \\ &= 5.83 \text{ units (2 d.p.)} \end{aligned}$$

(a) P(-2, 4), Q(5, 9)

 (x_1, y_1) (x_2, y_2)

$$PQ = \sqrt{(\quad)^2 + (\quad)^2}$$

$$= \sqrt{(\quad)^2 + (\quad)^2}$$

$$= \sqrt{ \quad + \quad }$$

$$= \sqrt{ \quad }$$

$$= \quad \text{unit (2 decimal point)}$$

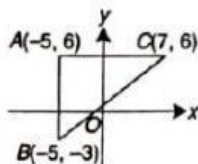
QUESTION 2

Solve these problems. **PL 3**

MATH 2RKT > New Section 2

EXAMPLE

Find the perimeter of triangle ABC.



Length of AB

$$= 6 - (-3) = 9 \text{ units}$$

Length of AC

$$= 7 - (-5) = 12 \text{ units}$$

Length of BC

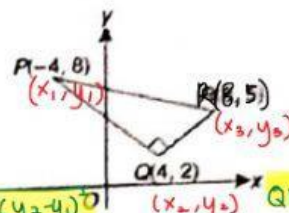
$$= \sqrt{9^2 + 12^2}$$

$$= \sqrt{225}$$

$$= 15 \text{ units}$$

$$\text{Perimeter} = 9 + 12 + 15 = 36 \text{ units}$$

(a) Find the area of the triangle PQR



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

Length of PQ

$$= \sqrt{(\quad)^2 + (\quad)^2}$$

$$= \sqrt{(\quad)^2 + (\quad)^2}$$

$$= \sqrt{ \quad + \quad }$$

$$= \sqrt{ \quad }$$

$$= \quad \text{unit}$$

Length of QR

$$= \sqrt{(\quad)^2 + (\quad)^2}$$

$$= \sqrt{(\quad)^2 + (\quad)^2}$$

$$= \sqrt{ \quad + \quad }$$

$$= \sqrt{ \quad }$$

$$= \quad \text{unit}$$

Area of $\triangle PQR$

Area of $\triangle PQR$

$$= \frac{1}{2} \times PQ \times QR$$

$$= \frac{1}{2} \times \quad \times$$

$$= \quad \text{unit}^2$$

QUESTION 3

Calculate the coordinates of the midpoint of the line PQ. **PL 3**

EXAMPLE

$$P(2, 4), Q(10, 8)$$

x_1, y_1 x_2, y_2

Midpoint PQ

$$= \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$= \left(\frac{2 + 10}{2}, \frac{4 + 8}{2} \right)$$

$$= \left(\frac{12}{2}, \frac{12}{2} \right) = (6, 6)$$

(a) $P(2, 5), Q(10, -5)$

x_1, y_1 x_2, y_2

Midpoint PQ

$$= \left(\frac{+}{2}, \frac{+}{2} \right)$$

$$= \left(\frac{+}{2}, \frac{+}{2} \right)$$

$$= (,)$$

(b) $P(11, -4), Q(5, -8)$

x_1, y_1 x_2, y_2

Midpoint of PQ

$$= \left(\frac{+}{2}, \frac{+}{2} \right)$$

$$= (,)$$