

Ex # 7.3

Q#1 (Read Statements from Book)

$$\text{Given } \begin{matrix} A(2,6) & , & B(9,12) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$$

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

$$d = \sqrt{(9-2)^2 + (12-6)^2}$$

$$= \sqrt{(7)^2 + (6)^2} = \sqrt{49+36}$$

$$d = \sqrt{85}$$

$$d = 9.21 \text{ Km}$$

Q#2 Given $\begin{matrix} A(5,7) & , & B(15,3) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$

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

$$M(x,y) = \left(\frac{5+15}{2}, \frac{7+3}{2} \right)$$

$$= \left(\frac{20}{2}, \frac{10}{2} \right)$$

$$M(x,y) = (10,5)$$

Q#3 Given $\begin{matrix} A(10,8) & , & B(4,3) \\ x_1 & y_1 & x_2 & y_2 \end{matrix}$

$$\begin{aligned} |AB| = d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(4 - 10)^2 + (3 - 8)^2} \\ &= \sqrt{(-6)^2 + (-5)^2} = \sqrt{36 + 25} \\ d &= \sqrt{61} \\ d &= 7.81 \text{ m} \end{aligned}$$

Q#4 Given $A(7, 2)$, $B(12, 10)$
 $x_1 \ y_1 \quad \quad \quad x_2 \ y_2$

$$\begin{aligned} |AB| = d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ d &= \sqrt{(12 - 7)^2 + (10 - 2)^2} \\ &= \sqrt{(5)^2 + (8)^2} = \sqrt{25 + 64} \\ d &= \sqrt{89} \\ d &= 9.43 \text{ Km} \end{aligned}$$

Q#5 Given $A(3, 9)$, $B(9, 13)$
 $x_1 \ y_1 \quad \quad \quad x_2 \ y_2$

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

$$M(x,y) = \left(\frac{3+9}{2}, \frac{9+13}{2} \right)$$
$$= \left(\frac{12}{2}, \frac{22}{2} \right)$$

$$M(x,y) = (6, 11)$$

Q#6 Given $A(3,4)$, $B(7,10)$
 x_1 y_1 x_2 y_2

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

$$M(x,y) = \left(\frac{3+7}{2}, \frac{4+10}{2} \right)$$

$$= \left(\frac{10}{2}, \frac{14}{2} \right)$$

$$M(x,y) = (5, 7)$$

Q#7 Given $A(12,65)$, $B(20,45)$
 x_1 y_1 x_2 y_2

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

$$d = \sqrt{(20-12)^2 + (45-65)^2}$$

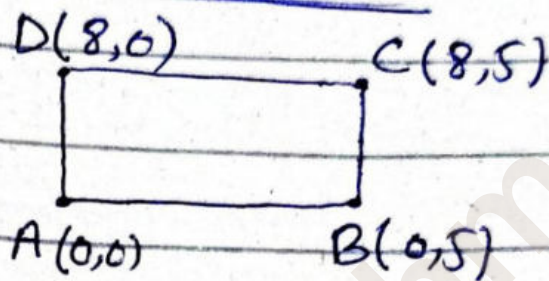
$$d = \sqrt{(8)^2 + (-20)^2}$$

$$d = \sqrt{64 + 400}$$

$$d = \sqrt{464}$$

$$d = 21.54 \text{ units}$$

Q#8



Since,

$$\text{Perimeter} = |AB| + |BC| + |CD| + |DA|$$

So,

For $|AB|$,

$$A(0,0) \\ x_1 \quad y_1$$

$$B(0,5) \\ x_2 \quad y_2$$

⌞ (A)

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

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

$$= \sqrt{25}$$

$$\boxed{|AB| = 5}$$

For $|BC|$, $B(0,5)$, $C(8,5)$
 $x_1 \quad y_1$ $x_2 \quad y_2$

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

$$= \sqrt{(8 - 0)^2 + (5 - 5)^2}$$

$$= \sqrt{8^2 + 0^2} = \sqrt{64}$$

$$\boxed{|BC| = 8}$$

For $|CD|$, $C(8, 5)$, $D(8, 0)$
 $x_1 \ y_1$ $x_2 \ y_2$

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

$$= \sqrt{(8 - 8)^2 + (0 - 5)^2} = \sqrt{0^2 + (-5)^2}$$

$$= \sqrt{25}$$

$$\boxed{|CD| = 5}$$

For $|DA|$, $D(8, 0)$, $A(0, 0)$
 $x_1 \ y_1$ $x_2 \ y_2$

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

$$= \sqrt{(0 - 8)^2 + (0 - 0)^2} = \sqrt{(-8)^2}$$

$$= \sqrt{64}$$

$$\boxed{|DA| = 8}$$
 , Put all values
in (A),

$$\text{Perimeter} = 5 + 8 + 5 + 8$$

$$\text{Perimeter} = 26 \text{ units}$$

Q#9 Given $X(40, 100)$ $Y(50, 80)$
 $x_1 \quad y_1 \quad x_2 \quad y_2$

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

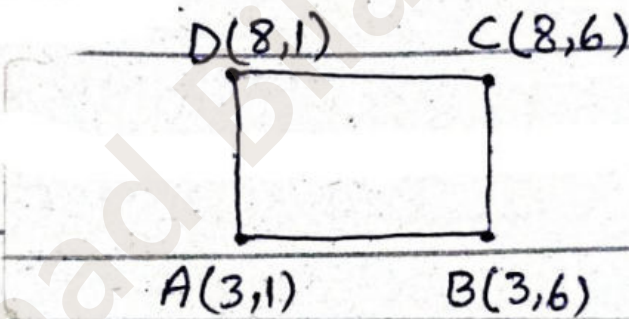
$$d = \sqrt{(50 - 40)^2 + (80 - 100)^2}$$

$$= \sqrt{(10)^2 + (-20)^2} = \sqrt{100 + 400}$$

$$= \sqrt{500}$$

$$d = 22.3 \text{ units}$$

Q#10



Since,

$$\text{Perimeter} = |AB| + |BC| + |CD| + |DA|$$

So,

(A)

For $|AB|$, $A(3,1)$, $B(3,6)$
 $x_1 \quad y_1 \quad x_2 \quad y_2$

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

$$= \sqrt{(3 - 3)^2 + (6 - 1)^2} = \sqrt{0^2 + 5^2}$$

$$= \sqrt{25}$$

$$\boxed{|AB| = 5}$$

For $|BC|$, $B(3, 6)$, $C(8, 6)$
 $x_1 \ y_1$ $x_2 \ y_2$

$$\begin{aligned} |BC| &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(8 - 3)^2 + (6 - 6)^2} = \sqrt{5^2 + 0^2} \\ &= \sqrt{25} \end{aligned}$$

$$\boxed{|BC| = 5}$$

For $|CD|$, $C(8, 6)$, $D(8, 1)$
 $x_1 \ y_1$ $x_2 \ y_2$

$$\begin{aligned} |CD| &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(8 - 8)^2 + (1 - 6)^2} = \sqrt{0^2 + (-5)^2} \end{aligned}$$

$$|CD| = \sqrt{25}$$

$$\boxed{|CD| = 5}$$

Subscribe YouTube Channel/ MaPhics
[Click here](#)

For $|DA|$, $D(8, 1)$, $A(3, 1)$
 $x_1 \ y_1$ $x_2 \ y_2$

$$\begin{aligned} |DA| &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(3 - 8)^2 + (1 - 1)^2} = \sqrt{(-5)^2 + 0^2} \\ &= \sqrt{25} \end{aligned}$$

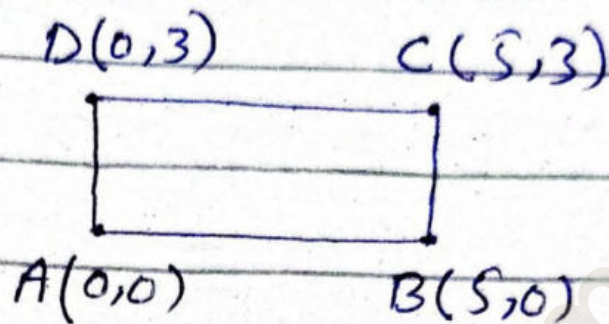
$$\boxed{|DA| = 5}$$

Using all values in (A),

$$\text{Perimeter} = 5 + 5 + 5 + 5$$

$$\text{Perimeter} = 20 \text{ units}$$

Q#11



Since,

$$\text{Perimeter} = |AB| + |BC| + |CD| + |DA|$$

For $|AB|$, $A(0,0)$, $B(5,0)$ (A)

$x_1 \quad y_1$ $x_2 \quad y_2$

$$|AB| = \sqrt{(5-0)^2 + (0-0)^2} = \sqrt{5^2 + 0^2}$$

$$= \sqrt{25}$$

$$\boxed{|AB| = 5}$$

For $|BC|$, $B(5,0)$, $C(5,3)$

$x_1 \quad y_1$ $x_2 \quad y_2$

$$|BC| = \sqrt{(5-5)^2 + (3-0)^2} = \sqrt{0^2 + 3^2}$$

$$= \sqrt{9}$$

$$\boxed{|BC| = 3}$$

For $|CD|$, $C(5,3)$, $D(0,3)$

$x_1 \quad y_1$ $x_2 \quad y_2$

$$|CD| = \sqrt{(0-5)^2 + (3-3)^2}$$

$$|CD| = \sqrt{(-5)^2 + (0)^2} = \sqrt{25}$$

$$\boxed{|CD| = 5}$$

For $|DA|$, $D(x_1, y_1)$, $A(x_2, y_2)$

$$\begin{aligned} |DA| &= \sqrt{(0-0)^2 + (0-3)^2} \\ &= \sqrt{(0)^2 + (-3)^2} = \sqrt{9} \end{aligned}$$

$$\boxed{|DA| = 3}$$

Using all values in (A),

$$\begin{aligned} \text{Perimeter} &= 5 + 3 + 5 + 3 \\ &= 16 \text{ units} \end{aligned}$$

{ The End }