Exercise 16B

Q1

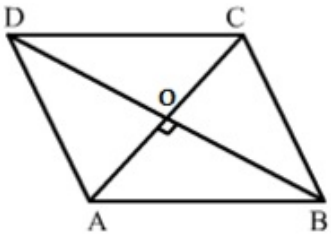
Answer :

(*c*) **rhombus**

In a rhombus, the two diagonals are not necessarily equal.

Q2

(c) 10 cm



Let $ABCD$ be a rhombus.
Let AC and BD be the diagonals of the rhombus intersecting at a point O.
$AC = 16$ cm
$BD = 12$ cm
We know that the diagonals of a rhombus bisect each other at right angles.
$\therefore AO = \frac{1}{2} AC$
$= \left(\frac{1}{2} \times 16\right)$ cm
$= 8$ cm
$BO = \frac{1}{2} BD$
$= \left(\frac{1}{2} \times 12\right)$ cm
$= 6$ cm
From the right ΔAOB:
$AB^2 = AO^2 + BO^2$
$= \left\{(8)^2 + (6)^2\right\}$ cm^2
$= (64 + 36)$ cm^2
$= 100$ cm^2
$\Rightarrow AB = \sqrt{100}$ cm
$= 10$ cm
Hence, the length of the side AB is 10 cm.
Therefore, the length of each side of the rhombus is 10 cm because all the sides of a rhombus are equal.

Q3

Answer :

(b) 32
We know that the sum of adjacent angles of a parallelogram is 180°.
$\Rightarrow 2x + 25 + 3x - 5 = 180$
$\Rightarrow 5x + 20 = 180$
$\Rightarrow 5x = 180 - 20$
$\Rightarrow 5x = 160$
$\Rightarrow x = \frac{160}{5}$
$\Rightarrow x = 32$
Therefore, the value of x is 32.

Q4

Answer :

(a) parallelogram
In a parallelogram, the diagonals do not necessarily intersect at right angles.

Q5

Answer :

(c) 70 cm

Let $ABCD$ be a rectangle and let the diagonal AC be 25 cm, length AB be $4x$ cm and breadth BC be $3x$ cm.
Each angle of a rectangle is a right angle.
$\therefore \angle ABC = 90^\circ$
From the right ΔABC:
$AC^2 = AB^2 + BC^2$
$\Rightarrow (25)^2 = (4x)^2 + (3x)^2$
$\Rightarrow 625 = 16x^2 + 9x^2$
$\Rightarrow 625 = 25x^2$

$x^2 = \frac{625}{25} = 25$
$\Rightarrow x = 5$
$\therefore$ Length $= 4 \times 5 = 20$ cm
Breadth $= 3 \times 5 = 15$ cm

$\therefore$ Perimeter of the rectangle = 2(20+15) cm
$= 70$ cm

Q6

Answer :

(d) 90°
The bisectors of any two adjacent angles of a parallelogram intersect at 90°.

********** END **********