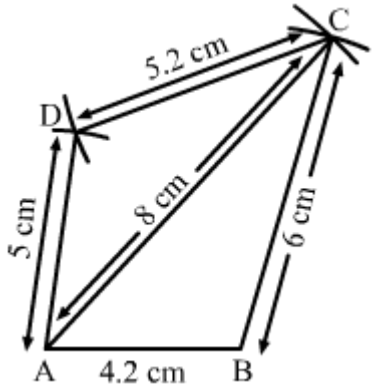
Chapter: Construction of Quadrilateral
Page no.: 198
Exercise: 17 A

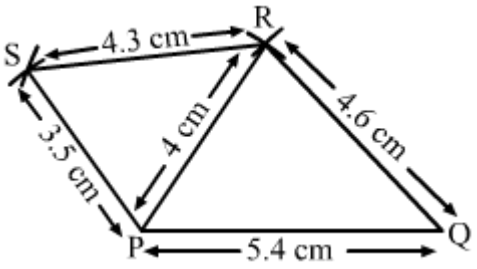
Question 1:
Solution:
Steps of construction:
Step 1: Draw AB=4.2 cm.
Step 2: With A as the Centre and radius equal to8 cm, draw an arc.
Step 3: With B as the Centre and radius equal to 6 cm, draw another arc, cutting the previous arc at C.
Step 4: Join BC.
Step 5: With A as the Centre and radius equal to 5 cm, draw an arc.
Step 6: With C as the Centre and radius equal to 5.2 cm, draw another arc, cutting the previous arc at D.
Step 7: Join AD and CD.

Thus, ABCD is the required quadrilateral.

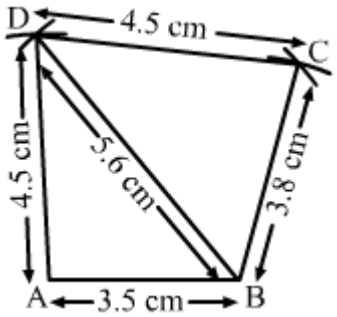


Question 2:
Solution:
Steps of construction:
Step 1: Draw PQ=5.4 cm.
Step 2: With P as the Centre and radius equal to 4 cm, draw an arc.
Step 3: With Q as the Centre and radius equal to 4.6 cm, draw another arc, cutting the previous arc at R.
Step 4: Join QR.
Step 5: With P as the Centre and radius equal to3.5 cm, draw an arc.
Step 6: With R as the Centre and radius equal to 4.3 cm, draw another arc, cutting the previous arc at S.
Step 7: Join PS and RS.

Thus, PQRS is the required quadrilateral.

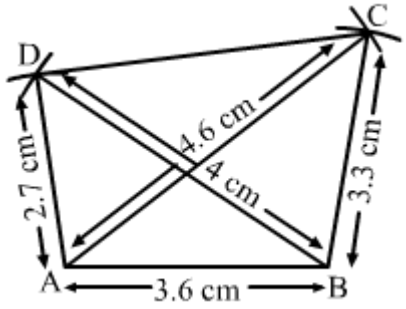


Question 3:
Solution:
Steps of construction:
Step 1: Draw AB=3.5 cm.
Step 2: With B as the Centre and radius equal to5.6 cm, draw an arc.
Step 3: With A as the Centre and radius equal to 4.5 cm, draw another arc, cutting the previous arc at D.
Step 4: Join BD and AD.
Step 5: With D as the Centre and radius equal to 4.5 cm, draw an arc.
Step 6: With B as the Centre and radius equal to 3.8 cm, draw another arc, cutting the previous arc at C.
Step 7: Join BC and CD.
Thus, ABCD is the required quadrilateral.

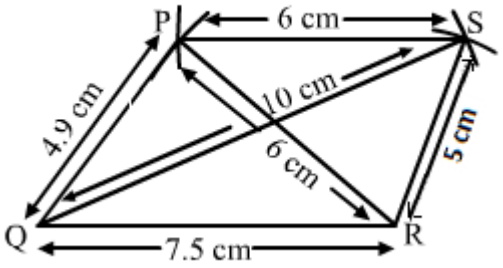


Question 4:
Solution:
Steps of construction:
Step 1: DrawAB=3.6 cm.
Step 2: With B as the centre and radius equal to 4 cm, draw an arc.
Step 3: With A as the centre and radius equal to 2.7 cm, draw another arc, cutting the previous arc at D.
Step 4: Join BD and AD.
Step 5: With A as the centre and radius equal to 4.6 cm, draw an arc.
Step 6: With B as the centre and radius equal to 3.3 cm, draw another arc, cutting the previous arc at C.
Step 7: Join AC, BC and CD.

Thus, ABCD is the required quadrilateral.

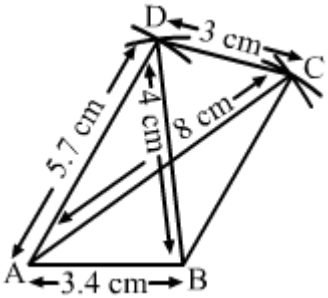


Question 5:
Solution:
Steps of construction:
Step 1: Draw QR=7.5 cm.
Step 2: With Q as the centre and radius equal to10 cm, draw an arc.
Step 3: With R as the centre and radius equal to 5 cm, draw another arc, cutting the previous arc at S.
Step 4: Join QS and RS.
Step 5: With S as the centre and radius equal to 6 cm, draw an arc.
Step 6: With R as the centre and radius equal to 6 cm, draw another arc, cutting the previous arc at P.
Step 7: Join PS and PR.
Step 8: PQ = 4.9 cm
Thus, PQRS is the required quadrilateral.



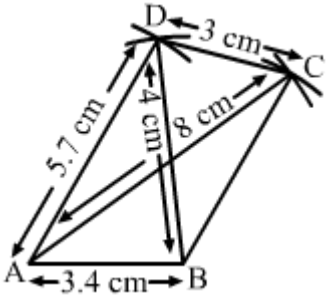
Question 6:
Solution:
Steps of construction:
Step 1: Draw AB=3.4 cm.
Step 2: With B as the centre and radius equal to 4 cm, draw an arc.
Step 3: With A as the centre and radius equal to 5.7 cm, draw another arc, cutting the previous arc at D.
Step 4: Join BD and AD.
Step 5: With A as the centre and radius equal to 8 cm, draw an arc.
Step 6: With D as the centre and radius equal to 3 cm, draw another arc, cutting the previous arc at C.
Step 7: Join AC, CD and BC.

Thus, ABCD is the required quadrilateral.

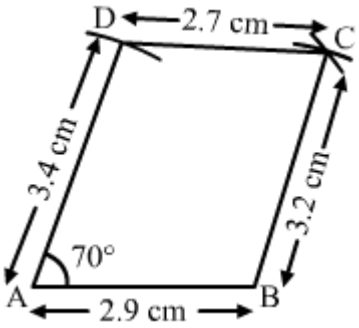


Question 7:
Solution:
Steps of construction:
Step 1: Draw AB=3.4 cm.
Step 2: With B as the Centre and radius equal to 4 cm, draw an arc.
Step 3: With A as the Centre and radius equal to 5.7 cm, draw another arc, cutting the previous arc at D.
Step 4: Join BD and AD.
Step 5: With A as the Centre and radius equal to 8 cm, draw an arc.
Step 6: With D as the Centre and radius equal to 3 cm, draw another arc, cutting the previous arc at C.
Step 7: Join AC, CD and BC.

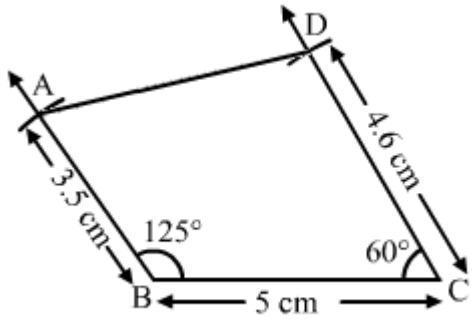
Thus, ABCD is the required quadrilateral.



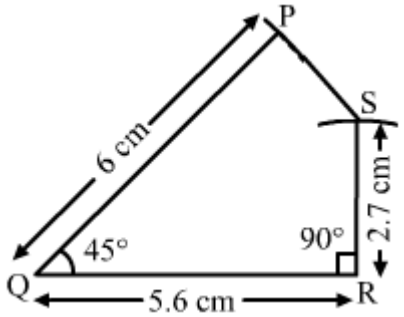
Question 8:
Solution:
Steps of construction:
Step 1: Draw AB= 2.9cm
Step 2: Make $\angle A = \angle D 80^o$
Step 3: With A as the Centre, draw an arc of 3.4cm. Name that point as D.
Step 4: With D as the Centre, draw an arc of 2.7cm.
Step 5: With B as the Centre, draw an arc of 3.2 cm, cutting the previous arc at C.
Step 6: Join CD and BC.
Then, ABCD is the required quadrilateral.



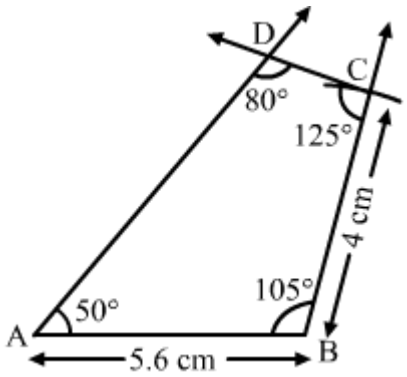
Question 9:
Solution:
Steps of construction:
Step 1: Draw BC= 5cm
Step 2: Make $\angle B=125^o$ and $\angle C=60^o$
Step 3: With B as the Centre, draw an arc of 3.5 cm. Name that point as A.
Step 4: With C as the Centre, draw an arc of 4.6 cm. Name that point as D.
Step 5: Join A and D.
Then, ABCD is the required quadrilateral.



Question 10:
Solution:
Steps of construction:
Step 1: Draw QR= 5.6 cm
Step 2: Make $\angle Q=45^o$ and $\angle R=90^o$
Step 3: With Q as the Centre, draw an arc of 6 cm. Name that point as P.
Step 4: With R as the Centre, draw an arc of 2.7cm. Name that point as S.
Step 6: Join P and S.
Then, PQRS is the required quadrilateral.



Question 11:
Solution:
Steps of construction:
Step 1: Draw AB=5.6 cm
Step 2: Make $\angle A = 50^o$ and $\angle B = 105^o$
Step 3: With B as the Centre, draw an arc of 4cm.
Step 4: Sum of all the angles of the quadrilateral is 360^o
$\angle A+\angle B+\angle C+\angle D = 360^o$
$50^o + 105^o + \angle C + 80^o = 360^o$
$235\circ + \angle C = 360^o$
$\angle C = 360^o - 235^o$
$\angle C = 125^o$
Step 5: With C as the Centre, make $\angle C$ equal to $\angle 125^o$.
Step 6: Join C and D.
Step 7: Measure $\angle D = 80^o$
Then, ABCD is the required quadrilateral.

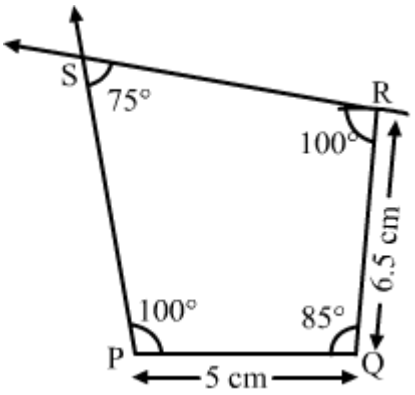


Question 12:
Solution:
Steps of construction:
Step 1: Draw PQ= 5cm
Step 2:
$\angle P+\angle Q+\angle R+\angle S = AB \parallel DC$

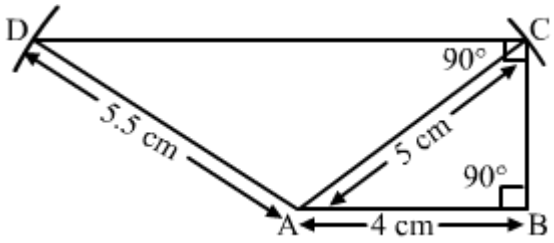
$$100^o + \angle Q + 100^o + 75^o = (9x)^o 162^o \frac{360^o}{20} (9\times 18)^o (Breadth)^2 x^2 \sqrt{36}\frac{A}{2}$$

$275^o + \angle Q = 360^o$
$\angle Q = 360^o - 275^o$
$\angle Q = 85^o$
Step 3: Make $\angle P = 100^o$ and $\angle Q = 85^o$
Step 4: With Q as the Centre, draw an arc of 6.5 cm.
Step 5: Make $\angle R = 100^o$
Step 6: Join R and S.

Step 7: Measure $\angle S = 75^o$
Then, PQRS is the required quadrilateral.



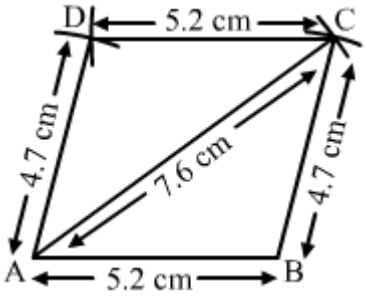
Question 13:
Solution:
Steps of construction:
Step 1: Draw AB=4cm
Step 2: Make $\angle B = 90\circ$
Step 3: $AC^2 = AB^2 + BC^2$
$5^2 = 4^2 + BC^2$
25-16= BC^2
BC=3cm
With B as the Centre, draw an arc equal to 3 cm.
Step 4: Make $\angle C = 90^o$
Step 5: With A as the Centre and radius equal to 5.5 cm, draw an arc and name that point as D.
Then, ABCD is the required quadrilateral.



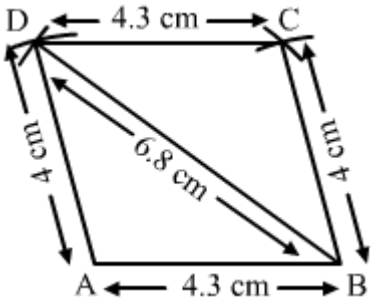
Exercise: 17 B
Page no.: 201

Question 1:
Solution:
Steps of construction:
Step 1: Draw AB = 5.2cm
Step 2: With B as the Centre, draw an arc of 4.7 cm.
Step 3: With A as the Centre, draw another arc of 7.6 cm, cutting the previous arc at C.

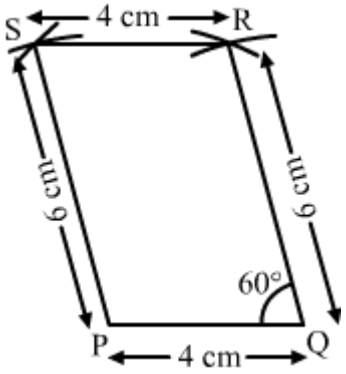
Step 4: Join A and C.
Step 5: We know that the opposite sides of a parallelogram are equal. Thus, with C as the Centre, draw an arc of 5.2cm.
Step 6: With A as the Centre, draw another arc of 4.7 cm, cutting the previous arc at D.
Step 7: Join CD and AD.
Then, ABCD is the required parallelogram.



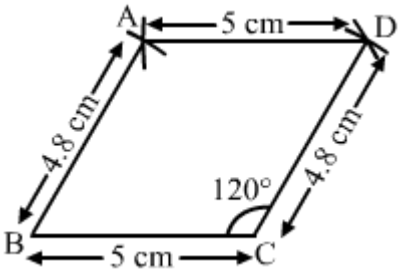
Question 2:
Solution:
Steps of construction:
Step 1: Draw AB= 4.3cm
Step 2: With B as the Centre, draw an arc of 6.8 cm.
Step 3: With A as the Centre, draw another arc of 4cm, cutting the previous arc at D.
Step 4: Join BD and AD.
Step 5: We know that the opposite sides of a parallelogram are equal.
Thus, with D as the Centre, draw an arc of 4.3cm.
Step 6: With B as the Centre, draw another arc of 4 cm, cutting the previous arc at C.
Step 7: Join CD and BC.
Then, ABCD is the required parallelogram.



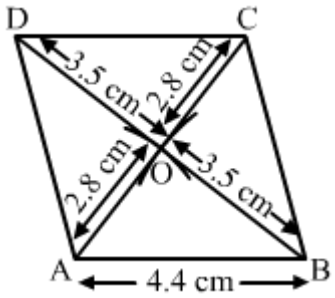
Question 3:
Solution:
Steps of construction:
Step 1: Draw PQ = 4 cm
Step 2: Make $\angle PQR = 60^o$
Step 3: With Q as the Centre, draw an arc of 6 cm and name that point as R.
Step 4: With R as the Centre, draw an arc of 4 cm and name that point as S.
Step 5: Join SR and PS.
Then, PQRS is the required parallelogram.



Question 4:
Solution:
Steps of construction:
Step 1: Draw BC = 5cm
Step 2: Make an ∠BCD = 120^o
Step 3: With C as Centre draw an arc of 4.8 cm, name that point as D
Step 4: With D as Centre draw an arc 5cm, name that point as A
Step 5: With B as Centre draw another arc 4.8 cm cutting the previous arc at A.
Step 6: Join AD and AB
then, ABCD is a required parallelogram.

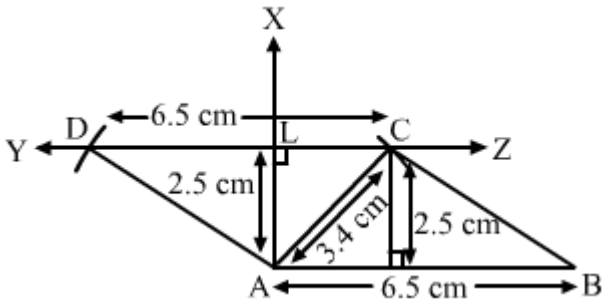


Question 5:
Solution:
We know that the diagonals of a parallelogram bisect each other.
Steps of construction:
Step 1: Draw AB = 4.4cm
Step 2: With A as the Centre and radius 2.8cm, draw an arc.
Step 3: With B as the Centre and radius 3.5cm, draw another arc, cutting the previous arc at point O.
Step 4: Join OA and OB.
Step 5: Produce OA to C, such that OC = AO. Produce OB to D, such that OB = OD.
Step 6: Join AD, BC, and CD.
Thus, ABCD is the required parallelogram. The other side is 4.5 cm in length.



Question 6:
Solution:
Steps of construction:
Step 1: Draw AB = 6.5cm
Step 2: Draw a perpendicular at point A. Name that ray as AX. From point A, draw an arc of length 2.5 cm on the ray AX and name that point as L.
Step 3: On point L, make a perpendicular. Draw a straight line YZ passing through L, which is perpendicular to the ray AX.
Step 4: Cut an arc of length 3.4 cm on the line YZ and name it as C.
Step 5: From point C, cut an arc of length 6.5 cm on the line YZ. Name that point as D.
Step 6: Join BC and AD.

Therefore, quadrilateral ABCD is a parallelogram.



Question 7:
Solution:
We know that the diagonals of a parallelogram bisect each other.

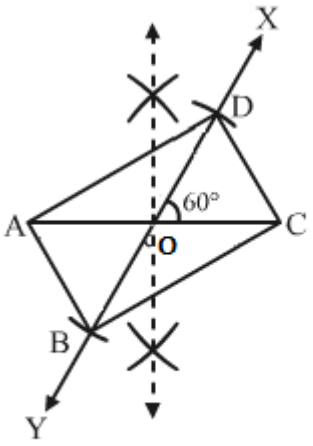
Steps of construction:
Step 1: Draw AC = 3.8cm
Step 2: Bisect AC at O.
Step 3: Make $\angle COX = 60^o$
Produce XO to Y.
Step 4:
$OB = \frac{1}{2}(4.6)$ cm
OB=2.3 cm

And OD $= \frac{1}{2}(4.6)$ cm

OD=2.3 cm

Step 5: Join AB, BC, CD and AD.

Thus, ABCD is the required parallelogram.



AC=3.8 cm

BD=4.6 cm

Question 8:

Solution:

Steps of construction:

Step 1: Draw AB = 11cm

Step 2: Make $\angle A = 90^o$

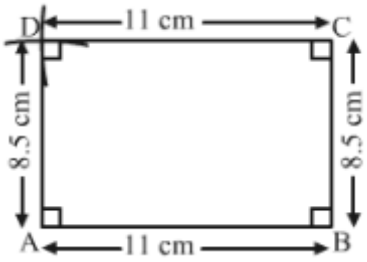
$\angle B = 90^o$

Step 3: Draw an arc of 8.5 cm from point A and name that point as D.

Step 4: Draw an arc of 8.5 cm from point B and name that point as C.

Step 5: Join C and D.

Thus, ABCD is the required rectangle.



Question 9:

Solution:

All the sides of a square are equal.

Steps of construction:

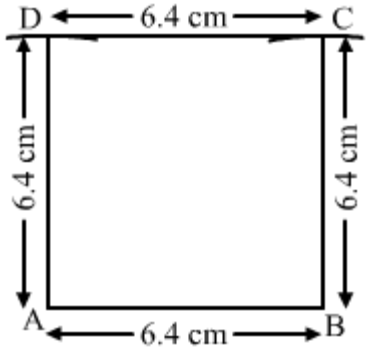
Step 1: Draw AB = 6.4cm

Step 2: Make $\angle A = 90^o$

$\angle B = 90^o$

Step 3: Draw an arc of length 6.4 cm from point A and name that point as D.

Step 4: Draw an arc of length 6.4 cm from point B and name that point as C.
Step 5: Join C and D.
Thus, ABCD is a required square.

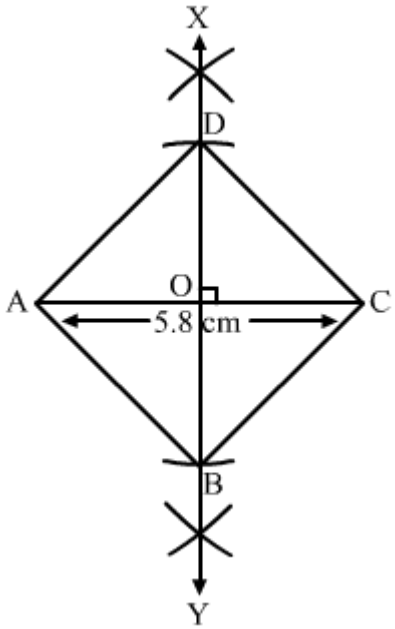


Question10:
Solution:
We know that the diagonals of a square bisect each other at right angles.
Steps of construction:
Step 1: Draw AC = 5.8 cm
Step 2: Draw the perpendicular bisector XY of AC, meeting it at O.
Step 3:
: From O:

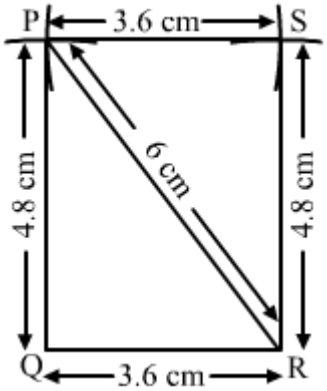
$OB = \frac{1}{2}(5.8)$ cm = 2.9 cm

$OD = \frac{1}{2}(5.8)$ cm = 2.9 cm

Step 4: Join AB, BC, CD and DA.
ABCD is the required square.

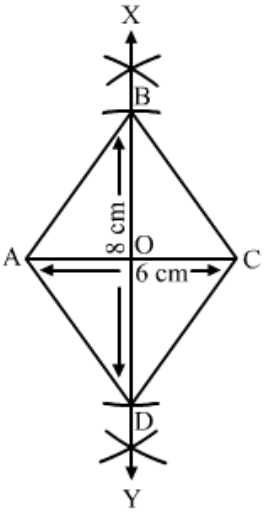


Question 11:
Solution:
Steps of construction:
Step 1: Draw QR = 3.6cm
Step 2: Make $\angle Q = 90^o \angle R = 90^o$
Step 3:
$PR^2 = PQ^2 + QR^2$
$6^2 = PQ^2 + 3.6^2$
$PQ^2 = 36 - 12.96$
$PQ^2 = 23.04$
$PQ = \sqrt{23.04}$
PQ = 4.8 cm
Step 3: Draw an arc of length 4.8 cm from point Q and name that point as P.
Step 4: Draw an arc of length 6 cm from point R, cutting the previous arc at P.
Step 5: Join PQ
Step 6: Draw an arc of length 4.8 cm from point R.
From point P, draw an arc of length 3.6 cm, cutting the previous arc. Name that point as S.
Step 7: Join P and S.
Thus, PQRS is the required rectangle. The other side is 4.8 cm in length.

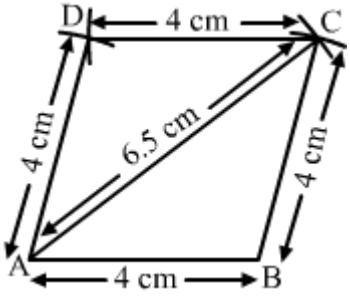


Question 12:
Solution:
We know that the diagonals of a rhombus bisect each other.
Steps of construction:
Step 1: Draw AC = 6cm
Step 2: Draw a perpendicular bisector (XY) of AC, which bisects AC at O.
Step 3:
$OB = \frac{1}{2}(8)$ cm
OB = 4cm
And $OD = \frac{1}{2}(8)$ cm
OD=4cm
Draw an arc of length 4 cm on OX and name that point as B.
Draw an arc of length 4 cm on OY and name that point as D.

Step 4: Join AB, BC, CD and AD.
Thus, ABCD is the required rhombus, as shown in the figure.

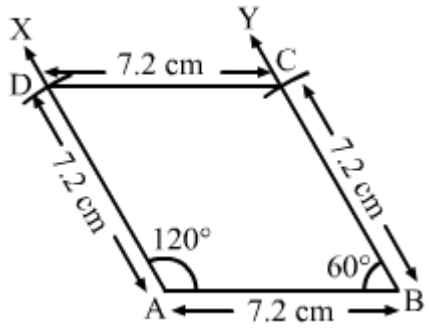


Question 13:
Solution:
Steps of construction:
Step 1: Draw AB = 4cm
Step 2: With B as the Centre, draw an arc of 4 cm.
Step 3: With A as the Centre, draw another arc of 6.5 cm, cutting the previous arc at C.
Step 4: Join AC and BC.
Step 5: With C as the Centre, draw an arc of 4 cm.
Step 6: With A as the Centre, draw another arc of 4 cm, cutting the previous arc at D.
Step 7: Join AD and CD.
ABCD is the required rhombus.

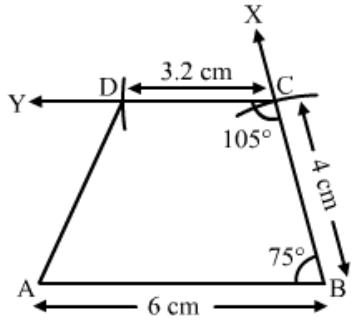


Question14:
Solution:
Steps of construction:
Step1: Draw AB = 7.2 cm
Step2: Draw $\angle ABY = 60^o$
$\angle BAX = 120^o$
Sum of the adjacent angles is 180^o
$\angle BAX + \angle ABY = 180^o$
$\angle BAX = 180^o - 60^o$

$= 120^o$
Step 3:
Set off AD (7.2 cm) along AX and BC (7.2 cm) along BY.
Step 4: Join C and D.
Then, ABCD is the required rhombus.



Question 15:
Solution:
Steps of construction:
Step 1: Draw AB = 6 cm
Step 2: Make $\angle ABX = 75^o$
Step 3: With B as the Centre, draw an arc at 4cm. Name that point as C.
Step 4: AB ‖ CD
$\therefore \angle ABX + \angle BCY = 180^o$
$\angle BCY = 180^o - 75^o = 105^o$
Make $\angle BCY = 105^o$
At C, draw an arc of length 3.2 cm
Step 5: Join A and D.
Thus, ABCD is the required trapezium.



Question 16:
Solution:
Steps of construction:
Step1: Draw AB equal to 7 cm.
Step2: Make an angle, $\angle ABX$, equal to 60^o
Step3: With B as the Centre, draw an arc of 5 cm. Name that point as C. Join B and C.
Step4: AB ‖ DC
$\therefore \angle ABX + \angle BCY = 180^o$
$\angle BCY = 180^o - 60^o$

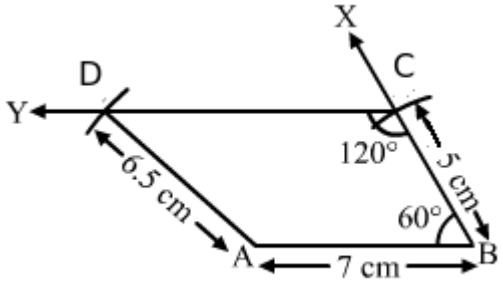
$= 120^o$

draw an angle, $\angle BCY$, equal to 120^o

Step4: With A as the Centre, draw an arc of length 6.5 cm, which cuts CY. Mark that point as D.

Step5: Join A and D.

Thus, ABCD is the required trapezium.



Test paper 17
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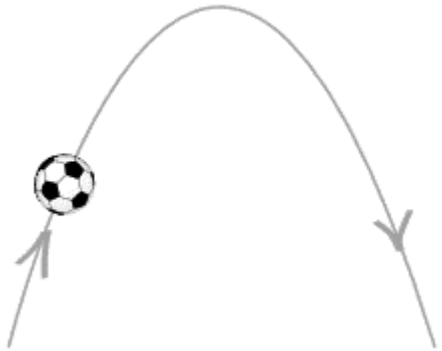
A. Question 1:
Solution:

(i) Open curve: An open curve is a curve where the beginning and end points are different.

Example: Parabola



(ii) Closed Curve: A curve that joins up so there are no end points.

Example: Ellipse

(iii) Simple closed curve: A closed curve that does not intersect itself.

Question 2:
Solution:

Let the angles be $(x)^o, (2x)^o, (3x)^o$ and $(4x)^o$

Sum of the angles of a quadrilateral is 360^o

$x + 2x + 3x + 4x = 360^o$

$10x = 360^o$

$x = \frac{360}{10}$

$x = 36^o$

$(2x)^o = (2 \times 36)^o = 72^o$

$(3x)^o = (3 \times 36)^o = 108^o$

$(4x)^o = (4 \times 36)^o = 144^o$

The angles of the quadrilateral are $36^o, 72^o$, 108^o , and 144^o

Question 3:
Solution:

Let the two adjacent angles of the parallelogram be $(2x)^o$ and $(3x)^o$

Sum of any two adjacent angles of a parallelogram is 180^o

$\therefore 2x + 3x = 180^o$

$5x = \frac{180^o}{5}$

$x = 36^o$

$(2x)^o = (2 \times 36)^o = 72^o$

$(3x)^o = (3 \times 36)^o = 108^o$

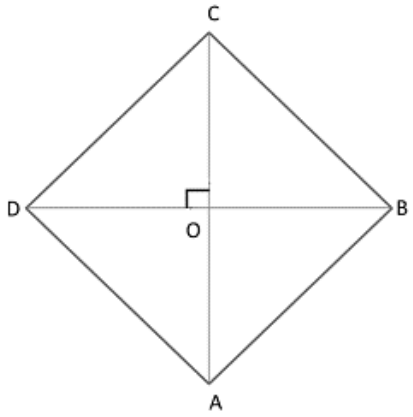
Measures of the angles are 72^o and 108^o .

Question 4:
Solution:

Let the length be 4x cm and the breadth be 5x cm.
Perimeter of the rectangle = 180 cm
Perimeter of the rectangle = 2(l + b)
2(l + b) = 180
2(4x + 5x) = 180
2(9x) = 180
18x = 180
x = 10
Length = 4x cm = 4 x 10 = 40 cm
Breadth = 5x cm = 5 x 10 = 50 cm

Question 5:
Solution:

Rhombus is a parallelogram.



Consider:
ΔAOB and ΔCOD
$\angle OAB = \angle OCD$ (alternate angle)
$\angle ODC = \angle OBA$ (alternate angle)
$\angle DOC = \angle AOB$ (vertically opposite angles)
$\Delta AOB \cong COB$
$\therefore AO = CO$
$OB = OD$

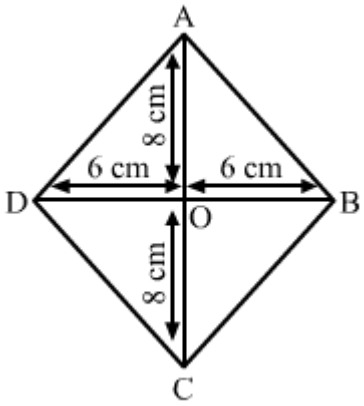
Therefore, the diagonals bisects at O.
Now, let us prove that the diagonals intersect each other at right angles.

Consider ΔCOD and ΔCOB:
$CD = CB$ (all sides of a rhombus are equal)
$CO = CO$ (common side)
$OD = OB$ (point O bisects BD)

$\therefore \Delta COD \cong \Delta COB$
$\therefore \angle COD = \angle COB$ (corresponding parts of congruent triangles)

Further, $\angle COD + \angle COB = 180^o$ (linear pair)
$\therefore \angle COD = \angle COB = 90^o$
It is proved that the diagonals of a rhombus are perpendicular bisectors of each other.

Question 6:
Solution:
All the sides of a rhombus are equal in length.
The diagonals of a rhombus intersect at 90^o
the diagonal and the side of a rhombus form right triangles.



In △AOB:

$AB^2 = AO^2 + OB^2$

$AB^2 = 8^2 + 6^2$

$AB^2 = 64 + 36$

$AB^2 = 100$

$AB = \sqrt{100}$

AB = 10 cm

Therefore, the length of each side of the rhombus is 10 cm.

B. Mark (✓) against the correct answer in each of the following:

Question 7:

Solution:

(b) $37^o, 143^o, 37^o, 143^o$

Opposite angles of a parallelogram are equal.

$\therefore 3x - 2 = 50 - x$

$3x + x = 50 + 2$

$4x = 52$

$$x = \frac{52}{4}$$

$x = 13$

Therefore, the first and the second angles are:

$(3x-2)^o = (2\times 13 - 2)^o = 37^o$

$(50 - x)^o = (50 - 13)^o = 37^o$

Sum of adjacent angles in a parallelogram is 180^o

Adjacent angles $= 180^o - 37^o = 143^o$

Question 8:

Solution:

(d) none of the these

Let the angles be $(x)^o, (3x)^o, (7x)^o$ and $(9x)^o$

Sum of the angles of the quadrilateral is 360^o

$x + 3x + 7x + 9x = 360^o$

$20x = 360^o$

$x = \frac{360^o}{20}$

$x = 18$

Angles: $(3x)^o = (3 \times 18)^o = 54^o$

$(7x)^o = (7 \times 18)^o = 126^o$

$(9x)^o = (9 \times 18)^o = 162^o$

Question 9:

Solution:

(b) 6 cm

Let the breadth of the rectangle be x cm.

Diagonal = 10 cm

Length= 8 cm

The rectangle is divided into two right triangles.

$(Diagonal)^2 = (\text{Length})^2 + (Breadth)^2$

$10^2 = 8^2 + x^2$

$100\text{-}64 = x^2$

$x^2 = 36$

$x = \sqrt{36}$

$x = 6$ cm

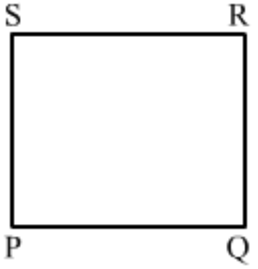
Breadth of the rectangle = 6 cm

Question 10:

Solution:

(d) $x = 8$

All sides of a square are equal.



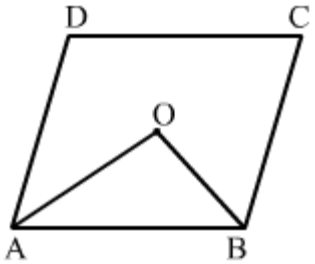
PQ = QR

$(2x + 3) = (3x - 5)$

$2x - 3x = -5 - 3$

$x = 8$ cm

Question 11:
Solution:
(d) 90°



We know that the opposite sides and the angles in a parallelogram are equal. Also, its adjacent sides are supplementary, i.e. sum of the sides is equal to 180^o.

Now, the bisectors of these angles form a triangle, whose two angles are:

$\frac{A}{2}$ And $\frac{B}{2}$ or $\frac{A}{2} = (90 - \frac{A}{2})$

Sum of the angles of a triangle is 180^o

$\frac{A}{2} + 90^o - \frac{\angle A}{2} + \angle O = 180^o$

$\angle O = 180^o - 90^o$

$\angle O = 90^o$

Hence, the two bisectors intersect at right angles.

Question 12:
Solution:
(c) 9
Hexagon has six sides.

Number of diagonals $= \frac{n\ (n-3)}{2}$ (where n is the number of sides)

$= \frac{6\ (6-3)}{2}$

$= 9$

Question 13:
Solution:
(b) 8

Interior angle $= \frac{180(n-2)}{n}$

$135 = \frac{180(n-2)}{n}$

$135n = 180n - 360$

$360 = 180n - 135n$

$n = 8$

It has 8 sides.

C.
Question 14:
Solution:

(i)

Solution: 360^o

(ii)

Solution: $(n-2) \times 180^o$

(iii)

Solutions: $\frac{n(n-3)}{2}$

Question 15:

(i)
Solution: Sum of all exterior angles of a regular polygon is 360^o.

(ii)
Solution: Sum of all interior angles of a polygon is (n-2) x 180^o where n is the number of sides

Question 16:
(i)
Solution: Octagon has 8 sides.

$\therefore$ Interior angle = $\frac{180^o n - 360°}{n}$

Interior angle = $\frac{(180^o \times 8) - 360°}{8} = 135^o$

(ii)
Solution: Sum of the interior angles of a regular hexagon = (6 - 2) × 180^o = 720^o

(iii)
Solution: each exterior angle of a regular polygon is 60^o.

$\therefore \frac{360^o}{60^o} = 6$

Therefore, the given polygon is a hexagon.

(iv)
Solution: If the interior angle is 108^o

Then the exterior angle will be 72^o (Interior and exterior angles are supplementary)
Sum of the exterior angles of a polygon is 360^o.

Let there be n sides of a polygon.

$72n = 360$

$n = \frac{360}{72}$

$n = 5$

Since it has 5 sides, the polygon is a pentagon.

(v)
Solution: A pentagon has 5 diagonals.

If n is the number of sides, the number of diagonals = $\frac{n(n-3)}{2}$

$= \frac{5(5-3)}{2}$

$= 5$

D. Question 17:
Solution:
(i)
Solution: F
The diagonals of a parallelogram need not be equal in length.

(ii)
Solution: F
The diagonals of a rectangle are not perpendicular to each other.

(iii)
Solution: T

(iv)
Solution: T

Adjacent sides of a kite are equal and this is also true for a rhombus. Additionally, all the sides of a rhombus are equal to each other.

E. Question 18:
Solution:
Steps of construction:
Step 1: Take PQ = 4.2 cm
Step 2: Make $\angle XPQ = 120^o$, $\angle YQP = 60^o$
Step 3: Cut an arc of length 5 cm from point Q. Name that point as R.
Step 4: From P, make an arc of length 6 cm. Name that point as S.

Step 5: Join P and S.

Thus, PQRS is a quadrilateral.