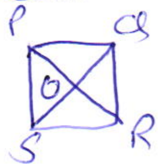
9th - CBSE

Solution of RT-5M

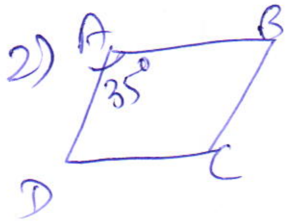
Section: A

1) Diagonals of square are perpendicular bisectors of each other.



$\therefore \angle POQ = 90^\circ$.

2)

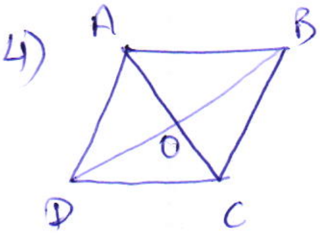


$\angle B = 180^\circ - \angle A$
$= 180^\circ - 35^\circ$
$\angle B = 145^\circ$

3) one

Section: B

4)



Diagonals of rhombus intersects each other at right angle

$\therefore OD \perp AC$ & $OB \perp AC$

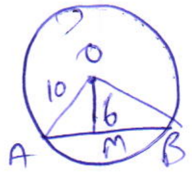
$ar(\square ABCD) = ar(\triangle ACD) + ar(\triangle ABC)$
$= \frac{1}{2} \times AC \times OD + \frac{1}{2} \times AC \times OB$
$= \frac{1}{2} \times AC \times (OD + OB)$
$= \frac{1}{2} \times AC \times DB.$
$= \frac{1}{2} \times$ product of diagonals.

5) Area of parallelogram = base $\times$ altitude

$x^2 = (x-3)(x+4)$

$\cancel{x^2} = \cancel{x^2} + x - 12$

$\boxed{x = 12}$

6) 

As, OM bisects AB.

$AM = MB$.

In ΔOAM, $OA = 10$

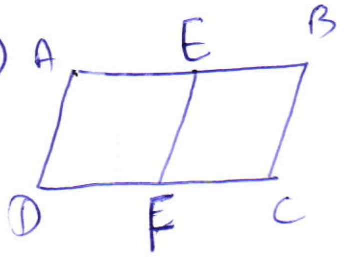
$OM = 6$

$\Rightarrow AM^2 = 10^2 - 6^2$

$= 8^2$

$\therefore AM = 8$

$\therefore AB = 2 \times AM = 16$ cm

7) 

Construction: Join EF.

To prove: ar(||gm AEFD) = ar(||gm EBCF)

Proof: ABCD is a parallelogram.

$\therefore AB \parallel DC$ & $AB = DC$

$AE \parallel DF$ & $\frac{1}{2} AB = \frac{1}{2} DC$

$\Rightarrow AE \parallel DF$ & $AE = DF$.

Thus, in quadrilateral AEFD, one pair of opposite sides AE & DF ~~are~~ is equal & parallel.

$\therefore$ AEFD is a ||gm

Similarly, EBCF is a ||gm.

Now AEFD & EBCF are ||gms betn 2 parallels & on a same base.

$\therefore$ ar(||gm AEFD) = ar(||gm EBCF).

8) $ar(\Delta DPC) = ar(\Delta DRC)$ —(i)

$ar(\Delta BDP) = ar(\Delta ARC)$ —(ii)

(ii) − (i)

$ar(\Delta BDP) - ar(\Delta DPC) = ar(\Delta ARC) - ar(\Delta DRC)$

$\Rightarrow ar(BDC) = ar(\Delta ADC)$.

These two triangles are on same base DC.

$\therefore$ DC $\parallel$ AB.

$\therefore$ ABCD is a trapezium.

→ Also, $ar(\Delta DRC) = ar(\Delta DPC)$

they are the triangles between same base DC.

$\therefore$ RP $\parallel$ DC.

$\therefore$ DCPR is a trapezium.

9) From the figure,

ΔMFR & $\square$ EFRS are on same base RF and between the parallels ESP & FR.

$\because$ $\square$ EFRS is $\square^m$.

$\therefore ar(\Delta MFR) = \frac{1}{2} ar(\square^m EFRS)$ —(i)

→ It is given that,

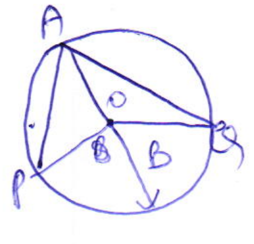
$\square^m$ PQRS & $\parallel^{gm}$ EFRS are the parallelograms lying between the same base RS & same parallels PF & RS.

$\therefore ar(\square^m PQRS) = ar(\square^m EFRS)$ —(ii)

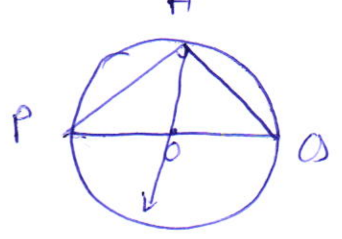
→ $\therefore$ from (i) & (ii)

$\frac{1}{2} ar(\square^m PQRS) = ar(\Delta MFR)$.

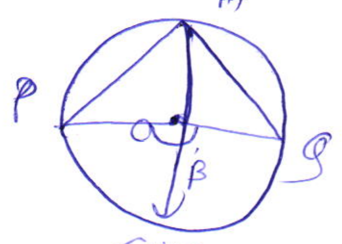
10)



(i)



(ii)



(iii)

<u>Given</u>: let PQ be the arc which subtends the $\angle POQ$ at centre & $\angle PAQ$ at a remaining part