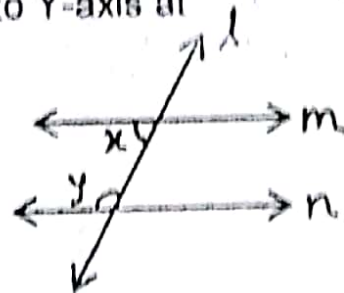


Q.1] A) Solve any four of the following :- (4)

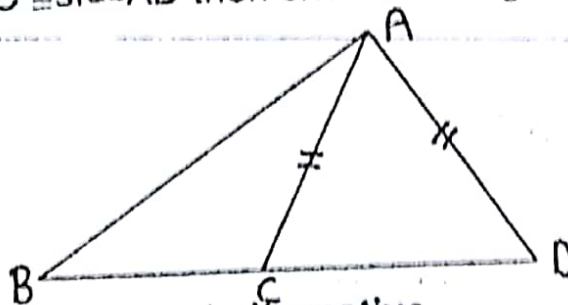
- 1) If P-Q-R & $d(P,Q) = 2 d(R,P) = 10$ find $d(Q,R)$
- 2) Draw rough fig to construct ΔABC in which $BC = 7\text{ cm}$
 $\angle B = 40^\circ$ and $AC - AB = 3\text{ cm}$
- 3) In which type of Triangle in Centre and circumcenter are coincident ?
- 4) Write down equation of a line parallel to Y-axis at a distance of 5 units from it to its left
- 5) $x = 74^\circ$ & $y = 105^\circ$
Are lines m & n parallel to each other ? why?



6) Find the value of $\cos^2 45^\circ + 2 \sin^2 30^\circ$.

B) solve the two of the following (4)

- 1) In a parallelogram ABCD if $\angle A = (3x + 15)^\circ$ and $\angle D = (2x - 5)^\circ$ then find the value of x and then find measures of $\angle A$ and $\angle D$.
- 2) Volume of a cuboid is 13.50 cu.m Breadth and height of the cuboid is 2.25 m and 2 m respectively. Find its length.
- 3) If side $AC \cong$ side AD then show that $\text{seg } AB > \text{seg } AD$



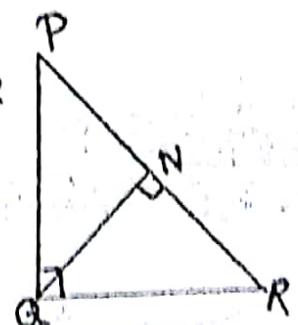
Q.2 A] Choose the correct alternative (4)

1) In a cyclic $\square ABCD$, twice the measure of $\angle A$ is thrice the measure of $\angle C$. Find the measure of $\angle A$.

- a) 36° b) 72° c) 90° d) 108°

2) In ΔPQR $\angle PQR = 90^\circ$ AND $QN \perp$ hypotenuse PR
 $PN = 9$ and $NR = 16$ then $QR = \square$ units

- a) 25. b) 5 c) 144 d) 12



3) In ΔABC , seg $DE \parallel$ side BC Then which of the following statement is not true ?

a) $\frac{AD}{DB} = \frac{AE}{EC}$

b) $\frac{AD}{AB} = \frac{AE}{AC}$

c) $\frac{DB}{AB} = \frac{EC}{AC}$

d) $\frac{AD}{DB} = \frac{CE}{AE}$

4) A line makes an angle of 60° with positive direction of X-axis. So the slope of the line is

a) $\frac{1}{2}$ b) $\frac{1}{\sqrt{3}}$ c) $\frac{1}{\sqrt{3}}$ d) $\sqrt{3}$

Q.2 B] solve any two of the following (4)

1) Draw a circle of radius 3.9 c.m. draw a tangent to the circle at any point on it without using the centre.

2) If $\tan \theta = 1$, find the value of $\frac{\sin \theta + \cos \theta}{\sec \theta + \operatorname{cosec} \theta}$

3) Find the volume of frustum if its height is 28 cm and radius of circular face are 12 cm and 15 cm ($\pi = \frac{22}{7}$)

Q.3 A] Complete any two of following activities : (4)

1) If $PQ \parallel RS$ AND $P(1, -2)$ $Q(5, 2)$ $R(3, k)$ and $S(k, -5)$

complete the following activity to find value of R

$$\text{Slope of } PQ = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\boxed{} - \boxed{}}{\boxed{} - \boxed{}}$$

$$= \frac{\boxed{} - \boxed{}}{\boxed{} - \boxed{}}$$

$$= \frac{\boxed{}}{\boxed{}}$$

$$= \frac{\boxed{}}{\boxed{}}$$

$$= \frac{\boxed{}}{\boxed{}}$$

$$= \frac{\boxed{}}{\boxed{}}$$

..... (1)

$$\text{Slope of } RS = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\boxed{} - \boxed{}}{\boxed{} - \boxed{}} = \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$

..... (2)

But slope of $PQ =$ slope of RS (\because lines have Slopes)

$$\therefore \frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}}$$

substituting values of ① & ② solve this to find the value of k

- 2) Construct according to following instructions
- Draw a circle with centre O and radius 3 cm
 - Draw a diameter AB and diameter CD such that $AB \perp CD$
 - Draw tangents to the circle at point A, B, C, D
 - Let these tangents intersect each other at point P, Q, R, and S. What type of quadrilateral is formed?

3) If $3 \sin^2 \theta = 2 \frac{1}{4}$ -----given

$$3 \sin^2 \theta = \frac{5}{4}$$

$$\sin^2 \theta = \frac{5}{4} \times \frac{1}{3}$$

$$\sin^2 \theta = \frac{5}{12}$$

$$\sin \theta = \frac{\sqrt{5}}{2\sqrt{3}}$$
 -----taking square roots

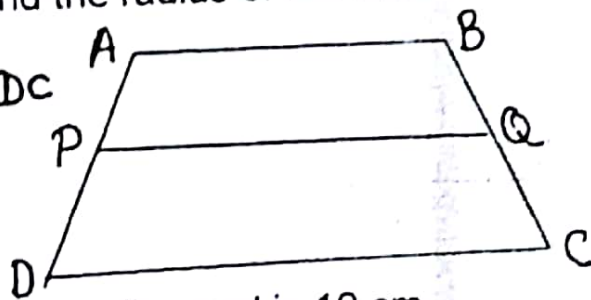
$$\sin \theta = \sin \boxed{}$$

$$\theta = \boxed{}$$

Q.3.B] solve any two of the following (4)

1) The area of a minor sector of a circle is 3.85 cm^2 and the measure of its central angle is 36° . Find the radius of the circle.

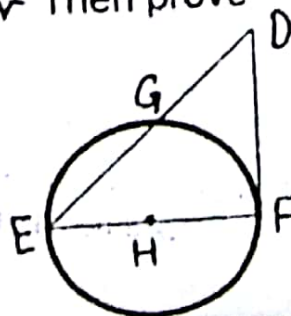
2) In trapezium ABCD
 side AB \parallel side PQ \parallel side DC
 AP = 15, PD = 12,
 QC = 14. Find BC



3) Find the side of square whose diagonal is 10 cm

Q.4 Solve any three of the following (9)

1) seg EF is a diameter and seg DF is a tangent Segment. The radius of circle is r . Then prove that $DE \times GE = 4r^2$



2) The radius & height of a solid right circular cylinder are 20 cm & 40 cm respectively. It is melted & solid cones are prepared. If the radius of base of the cone is 2 cm & its height is 20 cm. Complete the following activity to find how many such cones are prepared from the whole metal of the cylinder.

3) Prove that the sum of the squares of diagonals of a parallelogram is equal to sum of squares of its sides

4) $\Delta ABC \sim \Delta LBN$ In ΔABC , $AB = 6\text{ cm}$, $\angle B = 45^\circ$, $BC = 5.5\text{ cm}$. $\frac{AC}{LN} = \frac{4}{7}$
Construct ΔABC & ΔLBN .

Q. 5] solve any one of the following (4)

1) Smaller diagonal BD of a parallelogram ABCD is perpendicular to the sides AB & CD. Prove that $AC^2 - BD^2 = 4 AB^2$

2) The angle of elevation of a cloud from a point 80 m above a lake is 30° and the angle of depression of the reflection of cloud in the lake is 60° . Find the height of the cloud

Q.6] Solve any one of the following (3)

1) Draw a circle of radius 3 cm and center P. Take a point Q on a circle. Take another point R such that Q-P-R AND $d(Q,R) = 10\text{ cm}$. Draw tangents to the circle from point R

2) The diameter of the base of a right cylindrical bucket is 28 cm and its height is 30 cm. It is full of sand. If the sand in the bucket is panned on ground a cone of height 14 cm is formed. Find the area of the base of sand cone formed.