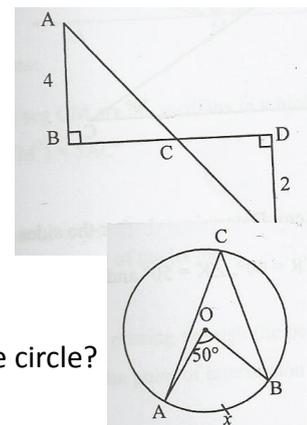


Q.1) Solve any six

(6)

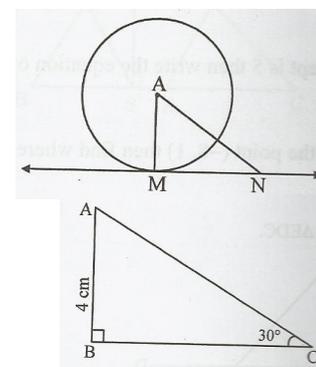
1. The area of a circle is 314sqcm and area of its minor sector is 31.4sqcm. What is area of major sector?
2. If slope of line is 2 and y intercept is 5 then write the equation of line.
3. If the terminal arm passes through the point (-8,2) then find where the angles lies?
4. If the angle $\theta = -60^\circ$, then find $\cos\theta$.
5. Prove that $\triangle ABC \sim \triangle EDC$.
6. In circle with centre O, $\angle AOB = 50^\circ$ then state the measure of $\angle ACB$.
7. How many tangents can be drawn to a circle from a point given in the exterior of the circle?



Q.2) Solve any five

(10)

1. If $\tan\theta = 2$, where θ is acute angle, then find the value of $\sec\theta$.
2. The dimensions of cuboid in cm are $20 \times 18 \times 10$. Find the total surface area.
3. If the slope of line joining points $(k, -3)$ and $(4, 5)$ is $\frac{1}{2}$ then find value of k.
4. Draw a tangent at any point on a circle of radius 3.7cm and centre P.
5. In circle with centre A, $AN = 10\text{cm}$, $MN = 5\text{cm}$. Line MN is tangent at M. find the radius of the circle.
6. In $\triangle ABC$, $\angle B = 90^\circ$, $\angle C = 30^\circ$ and $AB = 4\text{cm}$. find BC.



Q.3. Solve any four

(12)

1. Prove that the sum of the squares of the sides of a rhombus is equal to the sum of squares of its diagonals.
2. $\triangle RKN \sim \triangle SPV$. In $\triangle RKN$, $RK = 6.4\text{cm}$, $R = 60^\circ$, $K = 50^\circ$ and $RN:SV = 4:3$. Then construct $\triangle SPV$.
3. Show that the points $A(7,8)$, $B(-5,2)$ and $C(3,6)$ are collinear.
4. The circumference of a right circular cylinder is 88cm. its height is 15cm. find volume of cylinder. ($\pi = 22/7$)
5. Show that $\frac{1+\sin\theta}{1-\sin\theta} = \sec\theta + \tan\theta$

Q.4. Solve any three

(12)

1. Prove Pythagoras theorem.
2. Construct $\triangle PQR$ such that $PQ = 9.2\text{cm}$, $\angle PQR = 112^\circ$, RK is an altitude $RK = 2.4\text{cm}$.
3. Find number of coins of 2.2cm diameter and 0.2cm thick can be made from a right circular cylinder of height 0.2cm and diameter 8.8cm.
4. If two consecutive angles of a cyclic quadrilateral are congruent, then prove that one pair of opposite sides

is parallel and others are congruent.

Q.5. Solve any four

(20)

1. In $\triangle ABC$ seg AN and seg CM are the medians in which $\angle B=90^\circ$. Prove that $4(AN^2 + CM^2) = 5AC^2$.
2. A bird was flying in a line parallel to the ground from north to south at a height of 2000 meters. Tom standing in the middle of the field, first observed the bird in north at an angle of 30° . after 3 minutes he again observed it in south at an angle of 45° . find speed of bird in kilometers per hour.
3. Find the equation of line passing through the point of intersection of the lines $4x+3y+2=0$ and $6x+5y+6=0$ and the point of intersection of the lines $4x - 3y - 17=0$ and $2x+3y+5=0$.
4. The height of a cone is 40cm. a small cone is cut off at the top by a plane parallel to its base. If its volume is $\frac{1}{64}$ of the volume of the given cone, at what height above the base is the section made?
5. $\triangle ABC$ is inscribed in a circle with centre O . seg AX is the diameter of the circle with radius r . Seg $AD \perp$ seg BC . Prove that $A(\triangle ABC) = \frac{abc}{4}$ ($BC = a, AC = b, AB = c$)

