**Maharashtra State Board**

**Class X Maths Part-II**

**Geometry Question Paper Set-1**

**Time : 2 Hrs.** **Marks : 40**

Note :

(1) All questions are compulsory.

(2) Use of calculator is not allowed.

(3) Total marks are shown on the right side of the question.

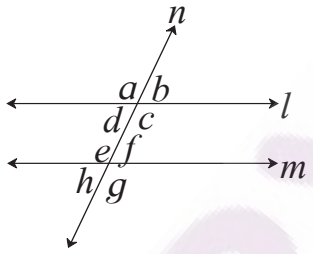
(4) If necessary draw the figure to justify your answer.

(5) Constructions marks should be distinct. Do not erase them.

Q 1 (A) Solve **any four** of the following (4)

(1) Ponit M is the mid point of seg AB and AB = 14 then AM = ?

(2)



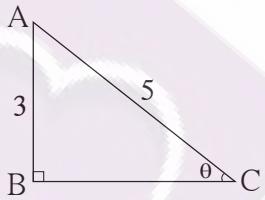

Observe the adjoining figure and write down one pair of interior angles.

(3) If $\Delta ABC \sim \Delta XYZ$ then complete the following brackets.

$$\frac{AB}{XY} = \frac{\square}{YZ} = \frac{AC}{\square}$$

(4) Draw $\angle ARP = 115^\circ$ and bisect it.

(5)



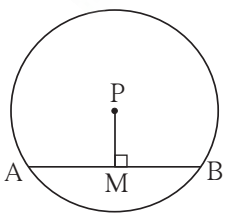

From the figure find the value of $\sin\theta$.

(6) Write down the equation of X- axis.

Q. 1 (B) Solve **any two** of the following. (4)

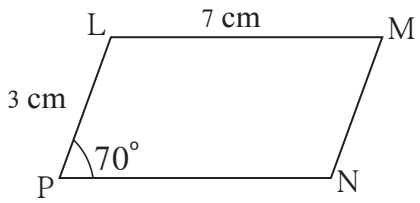
(1) Radius of a sphere is 14 cm. Find the surface area of the sphere.

(2)




P is the centre of the circle and its radius is 10 cm. Distance of a chord AB from the centre is 6 cm. Find the length of chord AB.

(3)




□ LMNP is a parallelogram. From the information given in the figure fill in the following boxes.

MN = ☐ cm

PN = ☐ cm

∠M = ☐

∠N = ☐

Q. 2 (A) Select the correct alternative answer and write it. (4)

(1) The ratio of corresponding sides of similar triangles is 5 : 7, then what is the ratio of their areas ?

(A) 25 : 49 (B) 49 : 25 (C) 5 : 7 (D) 7 : 5

(2) What is the total surface area of a solid hemisphere whose radius is $r$ ?

(A) $4\pi r^2$ (B) $\pi r^2$ (C) $2\pi r^2$ (D) $3\pi r^2$

(3) Find the length of the hypotenuse in a right angled triangle where the sum of the squares of the sides making right angle is 169.

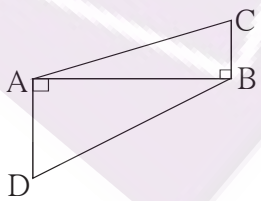
(A) 15 (B) 13 (C) 5 (D) 12

(4) How many common tangents can be drawn to two circles, touching each other externally ?

(A) One (B) Two (C) Three (D) Four

Q. 2 (B) Solve **any two** of the following. **(4)**

(1)



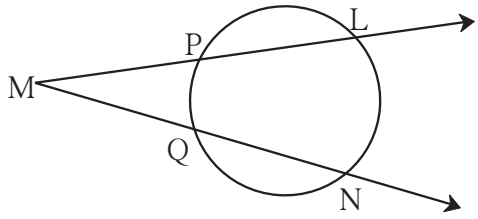

In the given figure, CB ⊥ AB, DA ⊥ AB. if BC = 4, AD = 8 then $\frac{A(\Delta ABC)}{A(\Delta ADB)}$ find.

(2) Find the length of the hypotenuse of a square whose side is 16 cm.

(3) Radius of a sector of a circle is 21 cm. If length of arc of that sector is 55 cm, find the area of the sector.

Q. 3 (A) Carry out **any two** of the following activities. (4)

(1)




In the figure $m(\text{arc LN}) = 110^\circ$, $m(\text{arc PQ}) = 50^\circ$ then complete the following activity to find $\angle$ LMN.

$\angle \text{LMN} = \frac{1}{2}\,[m(\text{arc LN}) - \square]$

$\therefore \angle \text{LMN} = \frac{1}{2}\,[\square - 50^\circ]$

$\therefore \angle \text{LMN} = \frac{1}{2} \times \square$

$\therefore \angle \text{LMN} = \square$

(2) Complete the following activity to draw a tangent to a circle at a point on the circle.

Draw a circle of radius 2.2 cm with O as centre.

↓

Take any point P on the circle and draw ray OP.

↓

Draw a perpendicular line to the ray at point P.

↓

Name the perpendilcular line as $l$.

$l$ is the tangent at point P.

(3) A tank of cylindrical shape has radius 2.8 m and its height 3.5 m. Complete the activity to find how many litres of water the tank will contain.

Capacity of water tank = Volume of cylindrical tank

$= \pi r^2 h$

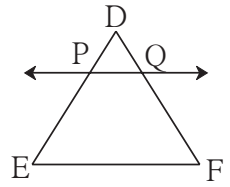
$= \frac{22}{7} \times 2.8 \times 2.8 \times \square$

$= \square\ \text{m}^3$

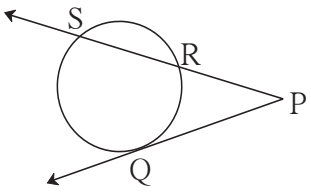
$= \square \times 1000$ litre

$= \square$ litre

Q. 3 (B) Solve **any two** of the following (4)

(1) 


In Δ DEF, line PQ || side EF, If DP = 2.4, PE = 7.2, PQ = 1 then find QF.

(2) 


In the figure Q is the contact point. If PQ = 12, PR = 8, then PS = ?

(3) If $\sec\theta = \frac{25}{7}$ then find $\tan\theta$.

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

(1) Prove that, in a right angled triangle, the square of the hypotenuse is equal to the sum of the squares of remaining two sides.

(2) Show that A(−4, −7), B(−1, 2), C(8, 5) and D(5, −4) are the vertices of a rhombus ABCD.

(3) A storm broke a tree and the tree top rested on ground 20 m away from the base of the tree, making an angle of 60° with the ground. Find the height of the tree.

(4) Draw a circle with centre P and radius 2.1 cm. Take point Q at a distance 5.2 cm from the centre. Draw tangents to the circle from point Q. Measure and write the length of a tangent segment.

Q. 5 Solve **any one** of the following. (4)

(1) AB and AC are the two chords of a circle whose radius is $r$. If $p$ and $q$ are the distance of chord AB and CD, from the centre respectively and if AB = 2AC then proove that $4q^2 = p^2 + 3r^2$.

(2) Δ SHR ~ Δ SVU. In Δ SHR, SH = 4.5 cm, HR = 5.2 cm, SR = 5.8 cm and $\frac{SH}{SV} = \frac{5}{3}$ then draw Δ SVU.

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

(1) Radius of circular base of an ear of corn is 6.6 cm and its length is 11.2 cm. If on an average 1 sqcm area contains 2 corn kernels, find the total number of kernels on a corn.

(2) In $\Delta$ ABC and $\Delta$ PQR,

$\angle$ ABC $\cong$ $\angle$ PQR, seg BD and seg QS are angle bisector.

If $\frac{l(AD)}{l(PS)} = \frac{l(DC)}{l(SR)}$

Prove that : $\Delta$ ABC ~ $\Delta$ PQR