Mathematics Part II (Geometry)

SSC Board Exam March 2027 – Practice Paper

Practice Question Paper

Time: 2 hours **Max. Marks: 40**

(1) All questions are compulsory.
(2) Use of a calculator is not allowed.
(3) The numbers to the right of the questions indicate full marks.
(4) In case of MCQs [Q. No. 1(A)] only the first attempt will be evaluated and will be given credit.
(5) Draw proper figures wherever necessary.
(6) The marks of construction should be clear. Do not erase them.
(7) Diagram is essential for writing the proof of the theorem.

Q.1 (A) Four alternative answers are given for every sub-question. Select the correct alternative and write its alphabet with the sub-question number. **[4]**

(i) If $\triangle ABC \sim \triangle PQR$ and AB : PQ = 4 : 9, then A($\triangle ABC$) : A($\triangle PQR$) = ?

(A) 2 : 3 (B) 4 : 9
(C) 16 : 81 (D) 81 : 16

(ii) Which of the following is a Pythagorean triplet?

(A) (5, 12, 14) (B) (7, 24, 25)
(C) (6, 8, 11) (D) (9, 12, 16)

(iii) An arc of a circle subtends an angle of 130° at the centre. What is the measure of an inscribed angle that intercepts the same arc?

(A) 130° (B) 65°
(C) 115° (D) 50°

(iv) What is the distance of the point (−8, 15) from the origin?

(A) 7 (B) 23
(C) 17 (D) 13

Q.1 (B) Solve the following sub-questions. **[4]**

(i) If $\cos\theta = 5/13$, find the value of $\sec\theta$.

(ii) Find the curved surface area of a cylinder whose radius is 7 cm and height is 10 cm. ($\pi = 22/7$)

(iii) Find the slope of the line passing through the points A(2, 3) and B(6, 11).

(iv) Two circles of radii 6 cm and 2 cm touch each other internally. Find the distance between their centres.

Q.2 (A) Complete any two activities and rewrite them. **[4]**

(i) In the figure, in △ABC, seg DE ∥ side BC. If AD = 6, DB = 4 and AE = 9, complete the following activity to find EC.

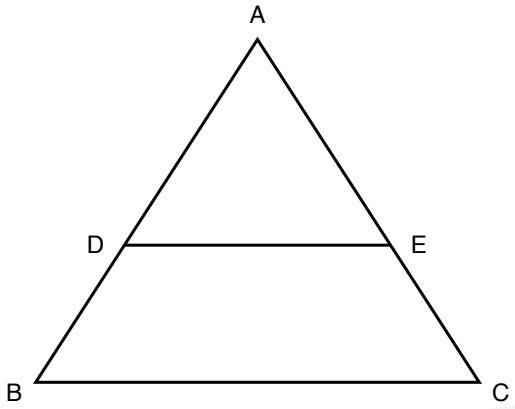
Activity: In △ABC, seg DE ∥ side BC ...(Given)

∴ AD/DB = ☐/EC ...(☐)

∴ 6/4 = 9/EC

∴ EC = (☐ × 4)/6

∴ EC = ☐



(ii) If sin θ = 3/5 and θ is an acute angle, complete the following activity to find cos θ and tan θ.

Activity: $\sin^2\theta + \cos^2\theta =$ ☐

∴ $(3/5)^2 + \cos^2\theta = 1$

∴ $\cos^2\theta = 1 - 9/25 =$ ☐

∴ cos θ = ☐ ...(θ is acute)

tan θ = sin θ/cos θ = (3/5) ÷ (4/5)

∴ tan θ = ☐

(iii) In the figure, the circle with centre O touches line PA at point A. If OA = 5 and OP = 13, complete the following activity to find PA.

Activity: Seg OA is a radius and line PA is a tangent at A.

∴ ∠OAP = ☐ ...(Tangent theorem)

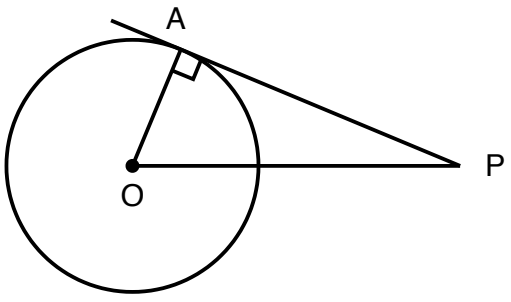
In △OAP, by Pythagoras theorem,

$OP^2 = OA^2 +$ ☐

∴ $13^2 = 5^2 + PA^2$

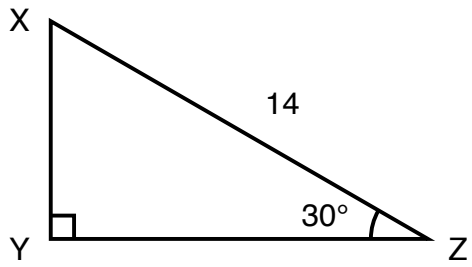
∴ $PA^2 = 169 - 25 =$ ☐

∴ PA = ☐



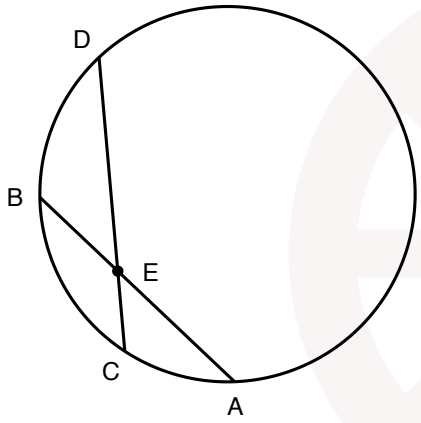
Q.2 (B) Solve any four of the following sub-questions. **[8]**

(i) In the figure, in △XYZ, ∠XYZ = 90°, ∠XZY = 30° and XZ = 14. Find XY and YZ.



(ii) Find the co-ordinates of the point P which divides the line segment joining A(−2, 5) and B(8, −5) internally in the ratio 2 : 3.

(iii) In the figure, chords AB and CD of a circle intersect each other at point E inside the circle. If AE = 6, EB = 4 and CE = 3, find ED.



(iv) The radius of a circle is 12 cm. Find the area of a sector of this circle whose central angle is 60°. (π = 3.14)

(v) △ABC ~ △PQR. A(△ABC) = 81 cm^2 and A(△PQR) = 144 cm^2. If BC = 9 cm, find QR.

Q.3 (A) Complete any one activity of the following and rewrite it. **[3]**

(i) In the figure, □ABCD is a rhombus. Its diagonals AC and BD intersect at point O. Complete the following activity to prove that $AB^2 + BC^2 + CD^2 + DA^2 = AC^2 + BD^2$.

Activity: Diagonals of a rhombus are perpendicular bisectors of each other.

∴ In △AOB, ∠AOB = ☐, AO = ½ AC and BO = ☐

$AB^2 = AO^2 +$ ☐ ...(Pythagoras theorem)

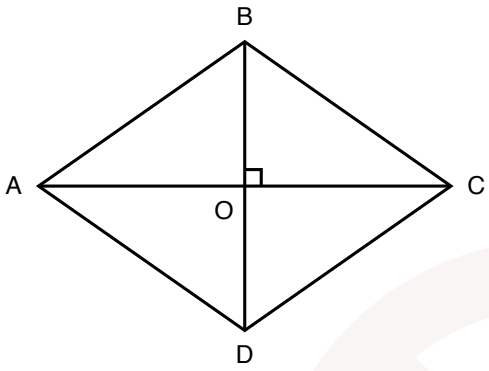
$\therefore AB^2 = (\frac{1}{2} AC)^2 + (\frac{1}{2} BD)^2$

$\therefore AB^2 =$ ☐/4

$\therefore 4AB^2 = AC^2 + BD^2$

But AB = BC = CD = DA ...(☐)

$\therefore AB^2 + BC^2 + CD^2 + DA^2 = AC^2 + BD^2$



(ii) Complete the following activity to prove that $\sin\theta/(1 - \cos\theta) - \sin\theta/(1 + \cos\theta) = 2\cot\theta$.

Activity: LHS = $\sin\theta/(1 - \cos\theta) - \sin\theta/(1 + \cos\theta)$

$= [\sin\theta(1 + \cos\theta) - \sin\theta(1 - \cos\theta)] / [(1 - \cos\theta)(1 + \cos\theta)]$

$= (\sin\theta + \sin\theta\cos\theta - \sin\theta + \sin\theta\cos\theta)/(1 -$ ☐)

$=$ ☐$/\sin^2\theta$ ...(∵ $1 - \cos^2\theta =$ ☐)

$= 2\cos\theta/\sin\theta$

$= 2$ ☐

= RHS

Q.3 (B) Solve any two of the following sub-questions. **[6]**

(i) Construct △ABC in which BC = 6 cm, ∠ABC = 60° and AB = 4.5 cm. Construct △PBQ such that △ABC ~ △PBQ and BC/BQ = 3/4.

(ii) Show that the points P(−2, 1), Q(1, 5) and R(5, 2) are the vertices of an isosceles right-angled triangle.

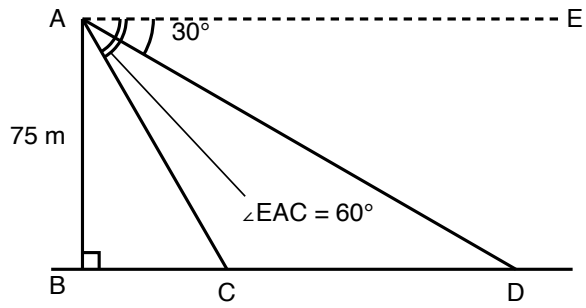
(iii) In △ABC, seg AD is a median. If AB = 11, AC = 17 and BC = 12, find AD.

(iv) A solid metal sphere of radius 6 cm is melted and recast into solid cones, each of radius 3 cm and height 4 cm. How many cones are made?

Q.4 Solve any two of the following sub-questions. **[8]**

(i) Prove that the opposite angles of a cyclic quadrilateral are supplementary.

(ii) From the top of a lighthouse 75 m high, the angles of depression of two boats on the same side of the lighthouse and in line with its foot are 60° and 30°. Find the distance between the two boats. ($\sqrt{3} = 1.73$)
(In the figure, AB is the lighthouse, C and D are the boats and AE is the horizontal line through A.)



(iii) Draw a circle with centre O and radius 3 cm. Draw tangents PA and PB to the circle from an external point P such that ∠APB = 60°.

Q.5 Solve any one of the following sub-questions. **[3]**

(i) At a certain time of the day, a girl 1.5 m tall casts a shadow 2 m long on level ground. At the same time, a vertical pole casts a shadow 12 m long.
(a) Draw a figure from the given information.
(b) Name the similar triangles and write the test of similarity.
(c) Find the height of the pole.

(ii) A family stores water in a cylindrical tank of inner diameter 1.4 m and height 2 m.
(a) Find the radius of the tank and write the formula for its volume.
(b) Find the capacity of the tank in litres.
(c) If the family uses 616 litres of water every day, for how many days will one full tank last? ($\pi = 22/7$, 1 m^3 = 1000 litres)

All the best for your exam!