MATHEMATICS

DPP
DAILY PRACTICE PROBLEMS

DPP No. 80

Total Marks : 25

Max. Time : 26 min.

Topic : Solution of Triangle

Type of Questions		M.M., Min.
Comprehension (no negative marking) Q.1 to Q.3	(3 marks, 3 min.)	[9, 9]
Single choice Objective (no negative marking) Q.4,5,6	(3 marks, 3 min.)	[12, 12]
Subjective Questions (no negative marking) Q.7	(4 marks, 5 min.)	[4, 5]

COMPREHENSION (Q. 1 to 3)

G is the centroid of triangle ABC. Perpendiculars from vertices A, B, C meet the sides BC, CA, AB at D, E, F respectively. P, Q, R are feet of the perpendiculars from G on sides BC, CA, AB respectively. L, M, N are the mid points of sides BC, CA, AB respectively, then

1. Length of the side PG is

(A) $\frac{1}{2}$ b sin C   (B) $\frac{1}{2}$ c sin C   (C) $\frac{2}{3}$ b sin C   (D) $\frac{1}{3}$ c sin B

2. (Area of ∆GPL) to (Area of ∆ALD) is equal to

(A) $\frac{1}{3}$ (B) $\frac{1}{9}$ (C) $\frac{2}{3}$ (D) $\frac{4}{9}$

3. Area of ∆PQR is

(A) $\frac{1}{9}$ (a^2 + b^2 + c^2) sin A sin B sin C   (B) $\frac{1}{18}$ (a^2 + b^2 + c^2) sin A sin B sin C

(C) $\frac{2}{9}$ (a^2 + b^2 + c^2) sin A sin B sin C   (D) $\frac{1}{3}$ (a^2 + b^2 + c^2) sin A sin B sin C

4. If the incircle of the ∆ ABC touches its sides at L, M and N as shown in the figure and if x, y, z be the circumradii of the triangles MIN, NIL and LIM respectively, where I is the incentre, then the product xyz is equal to :

(A) R r^2 (B) r R^2

(C) $\frac{1}{2}$ R r^2 (D) $\frac{1}{2}$ r R^2
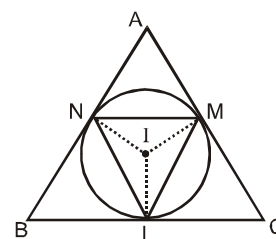
5. Given an isosceles triangle, whose one angle is 120° and radius of its incircle is $\sqrt{3}$ unit. Then the area of the triangle in sq. units is

(A) 7 + 12 $\sqrt{3}$ (B) 12 – 7 $\sqrt{3}$ (C) 12 + 7 $\sqrt{3}$ (D) 4π

6. If in triangle ABC, right angle at B, s − a = 3 and s − c = 2, then

(A) a = 2, c = 3   (B) a = 3, c = 4   (C) a = 4, c = 3   (D) a = 6, c = 8

7. Circles with radii 3, 4 and 5 touch each other externally. If P is the point of intersection of tangents to these circles at their points of contact, find the distance of P from the points of contact.

Answers Key

1. (D)

2. (B)

3. (B)

4. (C)

5. (C) **6.** (B) **7.** $\sqrt{5}$