

Properties of Triangle

ee24btech11051 - Prajwal

I. FILL IN THE BLANKS

- 1) In a $\triangle ABC$, $\angle A = 90^\circ$ and AD is an altitude. Complete the relation

$$\frac{BD}{BA} = \frac{AB}{(\dots)} \quad (1980)$$
 - 2) ABC is a triangle, P is a point on AB , and Q is point on AC such that $\angle AQP = \angle ABC$. Complete the relation $\frac{\text{area of } \triangle APQ}{\text{area of } \triangle ABC} = \frac{(\dots)}{AC^2}$ (1980)
 - 3) ABC is a triangle with $\angle B$ greater than $\angle C$. D and E are the points on BC such that AD is perpendicular to BC and AE is the bisector of angle A . Complete the relation

$$\angle DAE = \frac{1}{2}[\angle B - \angle C] \quad (1980)$$
 - 4) the set of all real numbers a such that $a^2 + 2a$, $2a + 3$ and $a^2 + 3a + 8$ are the sides of a triangle is ... (1985 - 2 Marks)
 - 5) In a triangle ABC , if $\cot A, \cot B, \cot C$ are in A.P., then a^2, b^2, c^2 are in ... progression (1985 - 2 Marks)
 - 6) A polygon of nine sides, each of length 2, is inscribed in a circle. The radius of the circle is ... (1987 - 2 Marks)
 - 7) If the angles of a triangle are 30° and 45° and the included side is $(\sqrt{3} + 1)$ cms, then the area of the triangle is ... (1988 - 2 Marks)
 - 8) If the triangle ABC , $\frac{2\cos A}{a} + \frac{2\cos B}{b} + \frac{2\cos C}{c} = \frac{a}{bc} + \frac{b}{ac}$, then the value of the angle A is ... degrees. (1993 - 2 Marks)
 - 9) In the triangle ABC , AD is the altitude from A . Given $b > c$, $\angle C = 23^\circ$ and $AD = \frac{abc}{b^2 - c^2}$ then $\angle B = \dots$ (1994 - 2 Marks)
 - 10) A circle is inscribed in an equilateral triangle of a side a . The area of any square inscribed in this circle is ... (1994 - 2 Marks)
 - 11) In a triangle ABC , $a : b : c = 4 : 5 : 6$. The ratio of the radius of the circumferences to that of the incircle is ... (1996 - 1 Marks)
- a) $QS = SR$ PR
 - b) $QS : SR = PR : PQ$ d) None of these (1979)
 - c) $QS : SR = PQ :$
- 2) From the top of a light-house 60 meter high with its base at the sea level the angle of depression of a boat is 15° . The distance of the boat from the foot of the light house.
 a) $\left(\frac{\sqrt{3}-1}{\sqrt{3}+1}\right) 60 \text{ metres}$ c) $\left(\frac{\sqrt{3}+1}{\sqrt{3}-1}\right)^2 60 \text{ metres}$
 b) $\left(\frac{\sqrt{3}+1}{\sqrt{3}-1}\right) 60 \text{ metres}$ d) none of these (1983 - 2 Marks)
 - 3) In the triangle ABC , angle A is the greater than angle B . If the measures of the angles A and B satisfies the equation $3 \sin x - 4 \sin^3 x - k = 0$, $0 < k < 1$, then the measure of the angle C is
 a) $\frac{\pi}{3}$ d) $\frac{5\pi}{6}$ (1990 - 2 Marks)
 b) $\frac{\pi}{2}$
 c) $\frac{2\pi}{3}$
 - 4) If the lengths of the sides of triangles are 3, 5, 7 then the largest angles of the triangle is
 a) $\frac{\pi}{2}$ c) $\frac{2\pi}{3}$
 b) $\frac{5\pi}{6}$ d) $\frac{3\pi}{4}$ (1994)

II. MCQ WITH ONE CORRECT ANSWER

- 1) If the bisector of the angle P of a triangle PQR meets QR in S , then