SOLUTION OF TRIANGLE- PYQ

1. In a triangle ABC,

$a\cos^2\left(\frac{C}{2}\right)+c\cos^2\left(\frac{A}{2}\right)=\frac{3b}{2}$, then the sides a,b and c **[JEE(Main)-2003]**

(1) satisfy a + b = c (2) are in A.P.

(3) are in G.P. (4) are in H.P.

2. The sides of a triangle are sin α, cos α and $\sqrt{1+\sin\alpha\cos\alpha}$ for some $0 < \alpha < \frac{\pi}{2}$. Then the greatest angle of the triangle is **[JEE(Main)-2004]**

(1) 60° (2) 90°

(3) 120° (4) 150°

3. In a triangle ABC, let $\angle C = \frac{\pi}{2}$. If r is the in-radius and R is the circumradius of the triangle ABC, then 2(r+R) equals - **[JEE(Main)-2005]**

(1) b + c (2) a + b

(3) a + b + c (4) c + a

4. ABCD is a trapezium such that AB and CD are parallel and BC ⊥ CD. If ∠ADB = θ, BC = p and CD = q, then AB is equal to - **[JEE - Main 2013]**

(1) $\frac{p^2+q^2}{p^2\cos\theta+q^2\sin\theta}$

(2) $\frac{\left(p^2+q^2\right)\sin\theta}{\left(p\cos\theta+q\sin\theta\right)^2}$

(3) $\frac{\left(p^2+q^2\right)\sin\theta}{p\cos\theta+q\sin\theta}$

(4) $\frac{p^2+q^2\cos\theta}{p\cos\theta+q\sin\theta}$

5. In a ΔABC, $\frac{a}{b}=2+\sqrt{3}$ and ∠C = 60º. Then the ordered pair (∠A, ∠B) is equal to :**[JEE(Main)-2015]**

(1) (75° , 45°) (2) (45°, 75°)

(3) (15°, 105°) (4) (105°, 15°)

6. If angle of triangle are in ratio 4 : 1 : 1, then ratio of the longest side to the perimeter is **[JEE(Adv.)-2003]**

(1) $\sqrt{3}:2+\sqrt{3}$ (2) $1:\sqrt{3}$

(3) $1:2+\sqrt{3}$ (4) 2 : 3

7. If a, b, c are sides of triangle such that $a : b : c = 1 : \sqrt{3} : 2$, then A : B : C is equal to **[JEE(Adv.)-2004]**

(1) 3 : 2 : 1 (2) 3 : 1 : 2

(3) 1 : 2 : 3 (4) 1 : 3 : 2

8. In isosceles triangle whose are angle is 120° and radius of incircle is $\sqrt{3}$, then area of triangle is **[JEE(Adv.)-2006]**

(1) $7+12\sqrt{3}$ (2) $12-7\sqrt{3}$

(3) $12+7\sqrt{3}$ (4) 4π

9. Two parellel chords of a circle of radius 2 are at distance $\sqrt{3}+1$ apart. It the chord subtend angle $\frac{\pi}{k}$ and $\frac{2\pi}{k}$ at centre, where k > 0, then [k] = **[JEE(Adv.)-2010]**

(1) 3 (2) 4 (3) 5 (4) 6

10. In ΔABC, a = 6, b = 10 and area of triangle is $15\sqrt{3}$. If ∠ACB is obtuse and r is inradius then r^2 = **[JEE(Adv.)-2010]**

(1) 4 (2) 5 (3) 6 (4) 3

11. In a triangle the sum of two sides is x and the product of the same two sides is y. If $x^2 - c^2 = y$, where c is a third side of the triangle, then the ratio of the in-radius to the circum-radius of the triangle is - **[JEE(Adv.)-2014]**

(1) $\frac{3y}{2x(x+c)}$ (2) $\frac{3y}{2c(x+c)}$

(3) $\frac{3y}{4x(x+c)}$ (4) $\frac{3y}{4c(x+c)}$

PREVIOUS YEARS QUESTIONS				ANSWER KEY						EXERCISE-II
Que.	1	2	3	4	5	6	7	8	9	10
Ans.	**2**	**3**	**2**	**3**	**4**	**1**	**3**	**3**	**1**	**4**
Que.	11									
Ans.	**2**									