DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. : 9**

Topic :- CO-ORDINATE GEOMETRY

1. One side of length $3a$ of triangle of area a^2 square unit lies on the line $x = a$. Then, one of the lines on which the third vertex lies, is

a) $x = -a^2$ b) $x = a^2$ c) $x = -a$ d) $x = \frac{a}{3}$

2. In a ΔABC, if D is the middle point BC and AD is perpendicular to AC, then $\cos B$ is equal to

a) $\frac{2b}{a}$ b) $-\frac{b}{a}$ c) $\frac{b^2+c^2}{ca}$ d) $\frac{c^2+a^2}{ca}$

3. The angle of depression of a point situated at a distance of 70 metres from the base of a tower is 45°. The height of the tower is

a) 70 m b) $70\sqrt{2}$ m c) $\frac{70}{\sqrt{2}}$ m d) 35 m

4. The sides of a triangle are three consecutive natural numbers and its largest angle is twice the smallest one. Then, the sides of the triangle are

a) 1, 2, 3 b) 2, 3, 4 c) 3, 4, 5 d) 4, 5, 6

5. Consider the following statements :

1. $\frac{b^2-c^2}{a\sin(B-C)} = 2R$

2. $a\sin(B-C) + b\sin(C-A) + c\sin(A-B) = 0$

Which of these is/are correct?

a) Only (1) b) Only (2) c) Both (1) and (2) d) None of these

6. The four distinct point $(0, 0)$, $(2, 0)$,$(0, -2)$ and $(k, -2)$ are concyclic, if k is equal to

a) -2 b) 2c) 1d) 0

7. If origin is shifted to $(7, -4)$, then point $(4, 5)$ shifted to

a) $(-3, 9)$ b) $(3, 9)$ c) $(11, 1)$ d) None of these

8. In ΔABC, $(a+b+c)\left(\tan\frac{A}{2} + \tan\frac{B}{2}\right)$ is equal to

a) $2c\cot\frac{C}{2}$ b) $2a\cot\frac{A}{2}$ c) $2b\cot\frac{B}{2}$ d) $\tan\frac{C}{2}$

9. In a ΔABC, sides a, b, c are in AP and $\frac{2}{1!9!}+\frac{2}{3!7!}+\frac{1}{5!5!}=\frac{8^a}{(2b)!}$, then the maximum value of $\tan A \tan B$ is equal to

a) $\frac{1}{2}$ b) $\frac{1}{3}$ c) $\frac{1}{4}$ d) $\frac{1}{4}$

10. If the angle of elevation of two towers from the middle point of the line joining their feet be 60° and 30° respectively, then the ratio of their heights is

a) 2:1 b) $1:\sqrt{2}$ c) 3:1 d) $1:\sqrt{3}$

11. In a $\Delta ABC, \angle C = 60°$then $\frac{1}{a+c}+\frac{1}{b+c}$ is equal to

a) $\frac{1}{a+b+c}$ b) $\frac{2}{a+b+c}$ c) $\frac{3}{a+b+c}$ d) None of these

12. In ΔABC, if $(a+b+c)(a-b+c)=3ac$, then

a) $\angle B = 60°$ b) $\angle B = 30°$ c) $\angle C = 60°$ d) $\angle A + \angle C = 90°$

13. If a^2, b^2, c^2 are in AP, then which of the following are also in AP?

a) $\sin A, \sin B, \sin C$ b) $\tan A, \tan B, \tan C$ c) $\cot A, \cot B, \cot C$ d) None of these

14. In a triangle ABC, if $\sin A \sin B = \frac{ab}{c^2}$, then the triangle is

a) Equilateral b) Isosceles c) Right angled d) Obtuse angled

15. The perimeter of a ΔABC is 6 times the arithmetic mean of the sine ratios of its angles. If $a = 1$, then A is equal to

a) $\frac{\pi}{6}$ b) $\frac{\pi}{3}$ c) $\frac{\pi}{2}$ d) $\frac{2\pi}{3}$

16. The centriod of the triangle ABC, where $A \equiv (2, 3), B \equiv (8, 10)$ and $C \equiv (5, 5)$ is

a) (5, 6) b) (6, 5) c) (6, 6) d) (15, 18)

17. The angle of elevation of the top of the tower observed from each of the tree point A, B, C on the ground forming a triangle is the same angle α. If R is the circumaradias of the triangle ABC, then the height of the tower is

a) $R\sin\alpha$ b) $R\cos\alpha$ c) $R\cot\alpha$ d) $R\tan\alpha$

18. The angle of elevation of the top of a hill from a point is α. After walking b metres towards the top up a slope inclined at an angle β to the horizon, the angle of elevation of the top becomes γ. Then, the height of the hill is

a) $\frac{b\sin\alpha\sin(\gamma-\beta)}{\sin(\gamma-\alpha)}$ b) $\frac{b\sin\alpha\sin(\gamma-\alpha)}{\sin(\gamma-\beta)}$ c) $\frac{b\sin(\gamma-\beta)}{\sin(\gamma-\alpha)}$ d) $\frac{\sin(\gamma-\beta)}{b\sin\alpha\sin(\gamma-\alpha)}$

19. The area of the ΔABC, in which $a = 1, b = 2, \angle C = 60°$, is

a) 4 sq unit b) $\frac{1}{2}$sq unit c) $\frac{\sqrt{3}}{2}$sq unit d) $\sqrt{3}$ sq units

20. If t_1, t_2 and t_3 are distinct points $(t_1, 2at_1 + at_1^3)$, $(t_2, 2at_2 + at_2^3)$ and $t_3, 2at_3 + at_3^3)$ are collinear, if

a) $t_1t_2t_3 = 1$ b) $t_1 + t_2 + t_3 = t_1t_2t_3$ c) $t_1 + t_2 + t_3 = 0$ d) $t_1 + t_2 + t_3 = -1$