DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. : 7**

Topic :- CO-ORDINATE GEOMETRY

1. Given points are $A(0, 4)$ and $B(0, -4)$, the locus of $P(x, y)$ such that $|AP - BP| = 6$, is
   a) $9x^2 - 7y^2 + 63 = 0$ b) $9x^2 + 7y^2 - 63 = 0$ c) $9x^2 + 7y^2 + 63 = 0$ d) None of these

2. The angle of elevation of the top of a tower from a point A due South of the tower is α and from a point B due East of the tower is β. If $AB = d$, then the height of the tower is
   a) $\frac{d}{\sqrt{\tan^2\alpha - \tan^2\beta}}$ b) $\frac{d}{\sqrt{\tan^2\alpha + \tan^2\beta}}$ c) $\frac{d}{\sqrt{\cot^2\alpha + \cot^2\beta}}$ d) $\frac{d}{\sqrt{\cot^2\alpha - \cot^2\beta}}$

3. Let P be the point $(1, 0)$ and Q be the point on $y^2 = 8x$. The locus of mid point of PQ is
   a) $x^2 - 4y + 2 = 0$ b) $x^2 + 4y + 2 = 0$ c) $y^2 + 4x + 2 = 0$ d) $y^2 - 4x + 2 = 0$

4. Let $A(k, 2)$ and $B(3, 5)$ are points. The point (t, t) divide $\overline{AB}$ from A's side in the ratio of k, then $k = ..., k \in R - \{0, -1\}$
   a) -4 b) -2 c) 4 d) 2

5. If a, b, c the sides of a ΔABC are in AP and a is the smallest side, then $\cos A$ equals
   a) $\frac{3c - 4b}{2c}$ b) $\frac{3c - 4b}{2b}$ c) $\frac{4c - 3b}{2c}$ d) None of these

6. Area of the triangle formed by the lines $y = 2x$, $y = 3x$ and $y = 5$ is equal to (in square unit)
   a) $\frac{25}{6}$ b) $\frac{25}{12}$ c) $\frac{5}{6}$ d) $\frac{17}{12}$

7. The angles of depression of the top and the foot of a chimney as seen from the top of a second chimney, which is 150 m high and standing on the same level as the first are θ and ϕ respectively, then the distance between their tops when $\tan\theta = \frac{4}{3}$ and $\tan\phi = \frac{5}{2}$, is
   a) $\frac{150}{\sqrt{3}}$m b) $100\sqrt{3}$ m c) 150 m d) 100 m

8. If one side of a triangle is double the other and the angles opposite to these sides differ by 60°, then the triangle is
   a) Obtuse angled b) Acute angled c) Isosceles d) Right angled

9. If the three points $(3q, 0)$, $(0, 3p)$ and $(1, 1)$ are collinear then which one is true?
   a) $\frac{1}{p} + \frac{1}{q} = 0$ b) $\frac{1}{p} + \frac{1}{q} = 1$ c) $\frac{1}{p} + \frac{1}{q} = 3$ d) $\frac{1}{p} + \frac{3}{q} = 1$

10. If in a ΔABC, $a = 15$, $b = 36$, $c = 39$, then $\sin\frac{C}{2}$ is equal to

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

11. In a ΔABC, let $\angle C = \frac{\pi}{2}$, if r is the inradius and R is the circumradius of the $\Delta\ ABC$, then $2(r + R)$ equals

a) $c + a$ b) $a + b + c$ c) $a + b$ d) $b + c$

12. From the top of a light house 60 m 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 light house is

a) $\left(\frac{\sqrt{3}-1}{\sqrt{3}+1}\right)$60 m b) $\left(\frac{\sqrt{3}+1}{\sqrt{3}-1}\right)$60 m c) $\frac{\sqrt{3}+1}{\sqrt{3}-1}$m d) None of these

13. If $\cos^2 A + \cos^2 C = \sin^2 B$, then $\Delta\ ABC$ is

a) Equilateral b) Right angled c) Isosceles d) None of these

14. The sides of triangle are in the ratio $1{:}\sqrt{3}{:}2$, then the angles of the triangle are in ratio

a) 1:3:5 b) 2:3:1 c) 3:2:1 d) 1:2:3

15. A tower stands at the top of a hill whose height is 3 times the height of the tower. The tower is found to subtend at a point 3 km away on the horizontal through the foot of the hill, an angle θ , where $\tan\theta = \frac{1}{9}$. The height of the tower is

a) 12 b) 3 c) $\frac{9 \pm \sqrt{33}}{8}$ d) None of these

16. Angles A, B and C of a $\Delta\ ABC$ are in AP. If $\frac{b}{c} = \frac{\sqrt{3}}{\sqrt{2}}$, then angle A is equal to

a) $\frac{\pi}{6}$ b) $\frac{\pi}{4}$ c) $\frac{5\pi}{12}$ d) $\frac{\pi}{2}$

17. The angle of depression of a boat in a river is 30° from the top of a tower, 87 m high and the speed of the boat is 5.8 km/h. The time taken by the boat to reach at the base of the tower is

a) 9 min b) $\frac{9\sqrt{3}}{10}$min c) 25 min d) 15 min

18. If the centroid of the triangle formed by the points $(a,b),(b,c)$ and (c,a) is at the origin, then $a^3 + b^3 + c^3 =$

a) 0 b) abc c) 3 abc d) $-3\ abc$

19. The sides of a $\Delta\ ABC$ are $BC = 5, CA = 4$ and $AB = 3$. If A is at the origin and the bisector of the internal angle A meets BC in $D(12/7,12/7)$, then the coordinates of the incentre, are

a) (2, 2) b) (2, 3) c) (3, 2) d) (1, 1)

20. If a, b and c are the sides of a triangle such that $a^4 + b^4 + c^4 = 2c^2(a^2 + b^2)$, then the angles opposite to the side C is

a) 45° or 90° b) 30° or 135° c) 45° or 135° d) 60° or 120°