DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. : 10**

Topic :- CO-ORDINATE GEOMETRY

1. If A and B are two points having coordinates $(3, 4)$ and $(5, -2)$ respectively and P is a point such that $PA = PB$ and area of triangle $PAB = 10$ sq unit, then the coordinates of P are
   a) $(7, 4)$ and $(13, 2)$ b) $(7, 2)$ and $(1, 0)$ c) $(2, 7)$ and $(4, 13)$ d) None of these

2. In $\Delta\, ABC$, $\angle A = \frac{\pi}{2}$, $b = 4$, $c = 3$, then the value of $\frac{R}{r}$ is equal to
   a) $\frac{5}{2}$ b) $\frac{7}{2}$ c) $\frac{9}{2}$ d) $\frac{35}{24}$

3. In the angles A, B and C of a triangular are in the arithmetic progression and if a, b and c denotes the lengths of the sides opposite to A, B and C respectively, then the value of the expression $\frac{a}{c}\sin 2C + \frac{c}{a}\sin 2A$ is
   a) $\frac{1}{2}$ b) $\frac{\sqrt{3}}{2}$ c) 1 d) $\sqrt{3}$

4. Two sides of a triangle are given by the roots of the equation $x^2 - 5x + 6 = 0$ and the angle between the sides is $\frac{\pi}{3}$. Then, the perimeter of the triangle is
   a) $5 + \sqrt{2}$ b) $5 + \sqrt{3}$ c) $5 + \sqrt{5}$ d) $5 + \sqrt{7}$

5. In a triangle ABC, if $\angle A = 60°$, $a = 5$, $b = 4$, then c is a root of the equation
   a) $c^2 - 5c - 9 = 0$ b) $c^2 - 4c - 9 = 0$ c) $c^2 - 10c + 25 = 0$ d) $c^2 - 5c - 41 = 0$

6. The angle of elevation of the top of vertical tower from a point A on the horizontal ground is found to be $\frac{\pi}{4}$. From A, a man walks 10 m up a path sloping at a angle $\frac{\pi}{6}$. After this the slope becomes steeper and after walking up another 10 m, the man reaches the top of the tower. Distance of A from the foot of the tower is
   a) $5(1 + \sqrt{3})$m b) $\frac{5}{2}(1 + \sqrt{3})$m c) $5(\sqrt{3} - 1)$m d) $\frac{5}{2}(\sqrt{3} - 1)$m

7. If the distance between the points $(a\cos\theta, a\sin\theta)$ and $(a\cos\phi, a\sin\phi)$ is $2a$, then θ is equal to
   a) $2n\pi \pm \pi + \phi, n \in Z$ b) $n\pi + \frac{\pi}{2} + \phi, n \in Z$
   c) $n\pi - \phi, n \in Z$ d) $2n\pi + \phi, n \in Z$

8. If $A(0, 0)$, $B(12, 0)$, $C(12, 2)$, $D(6, 7)$ and $E(0, 5)$ are the vertices of the pendagon $ABCDE$, then its area in square units, is
   a) 58 b) 60 c) 61 d) 63

9. A flag is standing vertically on a tower of height b. On a point at a distance a from the foot of the tower, the flag and the tower subtend equal angles. The height of the flag is

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

10. A kite is flying at an inclination of 60° with the horizontal. If the length of the thread is 120 m, then the height of the kite is

a) $60\sqrt{3}$ m b) 60 m c) $\frac{60}{\sqrt{3}}$ m d) 120 m

11. $\frac{a\cos A + b\cos B + c\cos C}{a+b+c}$ is equal to

a) $1/r$ b) r/R c) R/r d) $1/R$

12. AB is a vertical pole. The end A is on the level ground. C is the middle point of AB. P is a point on the level ground. The portion BC subtends an angle β at P. If $AP = n\,AB$, then $\tan\beta =$

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

13. If $P(3,7)$ is a point on the line joining $A(1,1)$ and $B(6,16)$, then the harmonic conjugate Q of point P has the coordinates

a) $(9, 29)$ b) $(-9, 29)$ c) $(9, -29)$ d) $(-9, -29)$

14. The angles of a triangle are in the ratio 3:5:10. Then, the ratio of the smallest side to the greatest side is

a) 1:sin 10° b) 1:2sin 10° c) 1:cos 10° d) 1:2cos 10°

15. In ΔABC, if $\begin{vmatrix} 1 & a & b \\ 1 & c & a \\ 1 & b & c \end{vmatrix} = 0$, then $\sin^2 A + \sin^2 B + \sin^2 C$ is equal to

a) $\frac{4}{9}$ b) $\frac{9}{4}$ c) $3\sqrt{3}$ d) 1

16. From a station A due West of a tower the angle of elevation of the top of the tower is seen to be 45°. From a station B, 10 m from A and in the direction 45° South of East of angle of elevation is 30°, the height of tower is

a) $5\sqrt{2}(\sqrt{5}+1)$m b) $\frac{5(\sqrt{5}+1)}{2}$m c) $\frac{5\sqrt{2}(\sqrt{5}+1)}{2}$m d) None of these

17. A straight line with negative slope passing through the point (1, 4) meets the coordinate axes at A and B. The minimum value of $OA + OB$ is equal to

a) 5 b) 6 c) 9 d) 8

18. An observer finds that the elevation of the top of a tower is $22\frac{1^\circ}{2}$ and after walking 150 metres towards the foot of the tower he finds that the elevation of the top has increased to $67\frac{1^\circ}{2}$. The height of the tower in metres is

a) 50 b) 75 c) 125 d) 175

19. In an isosceles ΔABC, $AB = AC$. If vertical angle A is $20°$, then $a^3 + b^3$ is equal to

a) $3a^2b$ b) $3b^2c$ c) $3c^2a$ d) abc

20. In a ΔABC, $a(\cos^2 B + \cos^2 C) + \cos A\ (c\cos C + b\cos B)$ is equal to

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