DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. : 4**

Topic :- CO-ORDINATE GEOMETRY

1. In a ΔABC, $2ac\sin\frac{A-B+C}{2}$ is equal to
   a) $a^2+b^2-c^2$ b) $c^2+a^2-b^2$ c) $b^2-a^2-c^2$ d) $c^2-a^2-b^2$

2. If $P=(1,0)$, $Q=(-1,0)$ and $R=(2,0)$ are three given points, then the locus of the point S (x,y) satisfying the relation $SQ^2++SR^2=2SP^2$ is
   a) A straight line parallel to x-axis b) A circle through the origin
   c) A circle with centre at the origin d) A straight line parallel to y-axis

3. If orthocenter and circumcentre of a triangle are respectively (1, 1) and (3, 2), then the coordinates of its centroid are
   a) $\left(\frac{7}{3},\frac{5}{3}\right)$ b) $\left(\frac{5}{3},\frac{7}{3}\right)$ c) (7, 5) d) None of these

4. The locus of the point of intersection of the lines $x\cot\theta+y\ \text{cosec}\ \theta=2$ and $x\ \text{cosec}\ \theta+y\cot\theta=6$ is
   a) A straight line b) Circle c) A hyperbola d) An ellipse

5. In ΔABC, if$\cot A$,$\cot B$,$\cot C$ be in AP, then a^2, b^2, c^2 are in
   a) HP b) GP c) AP d) None of these

6. The angels of elevation of the cloud at a point 2500 m high from the lake is 15°and the angle of depression of its reflection to the lake is 45°. Then the height of cloud from the foot of lake is
   a) $2500\sqrt{3}$ mb) 2500 mc) $500\sqrt{3}$ md) None of these

7. ABC is a triangular park with $AB=AC=100$ m. A clock tower is situated at the mid point of BC. The angle of elevation, if the top of the toper at A and B are $\cot^{-1}3.2$ and $\text{cosec}^{-1}2.6$ respectively. The height of the tower is
   a) 16 m b) 25 m c) 50 m d) None of these

8. In ΔABC, $b=\sqrt{3}$, $c=1$ and $\angle A=30°$, then the largest angle of the triangle is
   a) 60° b) 135° c) 90° d) 120°

9. In an equilateral triangle, $R{:}r{:}r_1$ is equal to
   a) 1:1:1 b) 1:2:3 c) 2:1:3 d) 3:2:4

10. In a triangle, if $r_1 = 2r_2 = 3r_3$, then $\frac{a}{b} + \frac{b}{c} + \frac{c}{a}$ is equal to

a) $\frac{75}{60}$ b) $\frac{155}{60}$ c) $\frac{176}{60}$ d) $\frac{191}{60}$

11. In a triangleABC, $a:b:c = 4:5:6$. The ratio of the radius of the circumcircle to that of the incircle is

a) $\frac{15}{4}$ b) $\frac{11}{5}$ c) $\frac{16}{7}$ d) $\frac{16}{3}$

12. An aeroplane flying with uniform speed horizontally one kilometer above the ground is observed at an elevation of 60°. After 10 s, if the elevation is observed to be 30°, then the speed of the plane (in km/h) is

a) $\frac{240}{\sqrt{3}}$ b) $200\sqrt{3}$ c) $240\sqrt{3}$ d) $\frac{120}{\sqrt{3}}$

13. The angle of elevation of the top of a tower standing on a horizontal plane from a point A is α. After walking a distance a towards the foot of the tower the angle of elevation is found to be β. The height of the tower is

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

14. If the vertices of a triangle have integral coordinates, the triangle cannot be

a) An equilateral triangle b) A right angled triangle
c) An isosceles triangle d) None of the above

15. In a $\Delta\, ABC$, among the following which one is true?

a) $(b+c)\cos\frac{A}{2} = a\sin\left(\frac{B+C}{2}\right)$ b) $(b+c)\cos\left(\frac{B+C}{2}\right) = a\sin\frac{A}{2}$
c) $(b-c)\cos\left(\frac{B-C}{2}\right) = a\cos\left(\frac{A}{2}\right)$ d) $(b-c)\cos\frac{A}{2} = a\sin\left(\frac{B-C}{2}\right)$

16. The upper $\left(\frac{3}{4}\right)$ th portion of a vertical pole subtends an angle $\tan^{-1}\left(\frac{3}{5}\right)$ at a point in the horizontal plane through its foot and at a distance 40 m from the foot. A possible height of the vertical pole is

a) 20 m b) 40 m c) 60 m d) 80 m

17. If C and $D$are the points of internal and external division of line segment AB in the same ratio, then AC,AB,AD are in

a) AP b) GP c) HP d) AGP

18. A ladder rests against a vertical wall at angle α to the horizontal. If its foot is pulled away from the wall through a distance $'a'$ so that it slides a distance $'b'$ down the wall making an angle β with the horizontal, then $a =$

a) $b\tan\left(\frac{\alpha-\beta}{2}\right)$ b) $b\tan\left(\frac{\alpha+\beta}{2}\right)$ c) $b\cot\left(\frac{\alpha-\beta}{2}\right)$ d) None of these

19. The angles A,B and C of a $\Delta\, ABC$ are in A.P. If $AB = 6$,$BC = 7$, then $AC =$

a) 5 b) 7 c) 8 d) None of these

20. The locus of a point whose difference of distance from points $(3, 0)$ and $(-3, 0)$ is 4, is

a) $\frac{x^2}{4} - \frac{y^2}{5} = 1$ b) $\frac{x^2}{5} - \frac{y^2}{4} = 1$ c) $\frac{x^2}{2} - \frac{y^2}{3} = 1$ d) $\frac{x^2}{3} - \frac{y^2}{2} = 1$