DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : MATHS**
Date : **DPP No. : 8**

Topic :- TRIGONOMETRIC FUNCTIONS

1. In a ΔABC, if $A = 45°, b = \sqrt{6}, a = 2$, then $B =$
   a) 30° or 150° b) 60° or 120° c) 45° or 135° d) None of these
2. Two sides of a triangle are $2\sqrt{2}$ cm and $2\sqrt{3}$ cm and the angle opposite to the shorter side of the two is $\frac{\pi}{4}$. The largest possible length of the third side is
   a) $(\sqrt{6} + \sqrt{2})$ cm b) $(6 + \sqrt{2})$ cm c) $(\sqrt{6} - \sqrt{2})$ cm d) None of these
3. The total number of ordered pairs (r, θ) satisfying $r\sin\theta = 3, r = 4(1 + \sin\theta)$, where $r > 0$ and $\theta \in [-\pi, \pi]$ is
   a) 0 b) 2 c) 4 d) None of these
4. $\sin 65° + \sin 43° - \sin 29° - \sin 7°$ is equal to
   a) $\cos 36°$ b) $\cos 18°$ c) $\cos 9°$ d) None of these
5. If $\sin B = \frac{1}{5}\sin(2A + B)$, then $\frac{\tan(A+B)}{\tan A}$ is equal to
   a) 5/3 b) 2/3 c) 3/2 d) 3/5
6. If $A + B + C = \pi$ and $\cos A = \cos B \cos C$, then $\tan B \tan C$ is equal to
   a) $\frac{1}{2}$ b) 2 c) 1 d) $-\frac{1}{2}$
7. If $\sin x + \text{cosec } x = 2$ then, $\sin^n x + \text{cosec}^n x$ is equal to
   a) 2 b) 2^n c) 2^{n-1} d) 2^{n-2}
8. If in a triangle ABC, $\frac{a^2 - b^2}{a^2 + b^2} = \frac{\sin(A-B)}{\sin(A+B)}$, then the triangle is
   a) Right angled or isosceles
   b) Right angled and isosceles
   c) Equilateral
   d) None of these
9. In a ΔABC, $\cos A = \cos B \cos C$, then $\cot B \cot C$ is equal to
   a) 2 b) 3 c) 1/2 d) 5
10. In a ΔABC if $a = 13, b = 14$ and $c = 15$, then reciprocals of r_1, r_2 and r_3 are in the ratio
    a) 6 :7 :8 b) 6 :8 :7 c) 8 :7 :6 d) None of these
11. $\frac{\sin 7\theta + 6\sin 5\theta + 17\sin 3\theta + 12\sin\theta}{\sin 6\theta + 5\sin 4\theta + 12\sin 2\theta}$ is equal to
    a) $2\cos\theta$ b) $\cos\theta$ c) $2\sin\theta$ d) $\sin\theta$
12. In a triangle the angles are in A.P. and the lengths of the two larger sides are 10 and 9 respectively, then the length of the third side can be
    a) $5 \pm \sqrt{6}$ b) 0.7 c) $\sqrt{5} + 6$ d) None of these
13. The general value of x for which $\cos 2x, \frac{1}{2}$ and $\sin 2x$ are in AP, are given by

a) $n\pi, n\pi + \frac{\pi}{2}$ b) $n\pi, n\pi + \frac{\pi}{4}$ c) $n\pi + \frac{\pi}{4}, \frac{3n\pi}{4}$ d) None of these

14. If $a = \frac{\pi}{18}$ rad, then $\cos a + \cos 2a + ... + \cos 18a$ is equal to

a) 0 b) -1 c) 1 d) ± 1

15. If $\sin\theta + \cos\theta = 1$, then the general value of θ is

a) $2n\pi$ b) $n\pi + (-1)^n\frac{\pi}{4} - \frac{\pi}{4}$ c) $2n\pi + \frac{\pi}{2}$ d) None of these

16. If $1 + \sin x + \sin^2 x + \sin^3 x + ... + ...\infty$ is equal to $4 + 2\sqrt{3}$, $0 < x < \pi$, then $x =$

a) $\frac{\pi}{6}$ b) $\frac{\pi}{4}$ c) $\frac{\pi}{3}$ or $\frac{\pi}{6}$ d) $\frac{\pi}{3}$ or $\frac{2\pi}{3}$

17. If $\sin x + \sin y = a$ and $\cos x + \cos y = b$, then $\tan\left(\frac{a+y}{2}\right)$ is equal to

a) $\frac{ab}{a+b}$ b) $\frac{a}{b}$ c) $\frac{b}{a}$ d) None of these

18. If $\sin(\pi\cot\theta) = \cos(\pi\tan\theta)$, then $\cot 2\,\theta$ is equal to where $n \in Z$

a) $n - \frac{1}{4}$ b) $n + \frac{1}{4}$ c) $4n + 1$ d) $4n - 1$

19. If the altitudes of a triangle are in AP, then the sides of the triangle are in

a) A.P. b) G.P. c) H.P. d) None of these

20. The value of $\cos\frac{\pi}{5}\cos\frac{2\pi}{5}\cos\frac{4\pi}{5}\cos\frac{8\pi}{5}$ is equal to

a) $\frac{1}{16}$ b) 0 c) $-\frac{1}{8}$ d) $-\frac{1}{16}$