



Sri Raghavendra Tuition Center

Exercises test 3.1, 3.2 & 3.3

11th Standard

Maths

Date : 14-09-24

Reg.No. :

Exam Time : 01:00 Hrs

Total Marks : 50

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Centum Book Available

I. Multiple Choice Question

5 x 1 = 5

- 1) Which of the following is not true?
(a) $\sin\theta = -\frac{3}{4}$ (b) $\cos\theta = -1$ (c) $\tan\theta = 25$ (d) $\sec\theta = \frac{1}{4}$
- 2) $\cos 1^\circ + \cos 2^\circ + \cos 3^\circ + \dots + \cos 179^\circ =$
(a) 0 (b) 1 (c) -1 (d) 89
- 3) If $\tan \alpha$ and $\tan \beta$ are the roots of $x^2 + ax + b = 0$; then $\frac{\sin(\alpha+\beta)}{\sin\alpha\sin\beta}$ is equal to
(a) $\frac{b}{a}$ (b) $\frac{a}{b}$ (c) $-\frac{a}{b}$ (d) $-\frac{b}{a}$
- 4) Let $f_k(x) = \frac{1}{k}[\sin^k x + \cos^k x]$ where $x \in \mathbb{R}$ and $k \geq 1$. Then $f_4(x) - f_6(x) =$
(a) $\frac{1}{4}$ (b) $\frac{1}{12}$ (c) $\frac{1}{6}$ (d) $\frac{1}{3}$
- 5) $\frac{\sin(A-B)}{\cos A \cos B} + \frac{\sin(B-C)}{\cos B \cos C} + \frac{\sin(C-A)}{\cos C \cos A}$ is
(a) $\sin A + \sin B + \sin C$ (b) 1 (c) 0 (d) $\cos A + \cos B + \cos C$

II. 2 Marks

5 x 2 = 10

- 6) Show that $\tan(45^\circ + A) = \frac{1+\tan A}{1-\tan A}$
- 7) Find the values of other five trigonometric functions for the following
 $\tan \theta = -2$, θ lies in the II quadrant
- 8) Find the values of $\tan(1050^\circ)$.
- 9) Find the values of other five trigonometric functions for the following
 $\sec \theta = \frac{13}{5}$, θ lies in the IV quadrant
- 10) Find the values of $\sin(-1110^\circ)$.
- 11) Find the values of $\sin(-\frac{11\pi}{3})$.

III. 3 Marks

5 x 3 = 15

- 12) Find the values of other five trigonometric functions for the following
 $\cos \theta = -\frac{1}{2}$, θ lies in the III quadrant
- 13) An airplane propeller rotates 1000 times per minute. Find the number of degree that a point on the edge of the propeller will rotate in 1 second
- 14) $(\frac{5}{7}, \frac{2\sqrt{6}}{7})$ is a point on the terminal side of an angle θ in standard position. Determine the six trigonometric function values of angle θ
- 15) Find the values of other five trigonometric functions for the following
 $\sin \theta = -\frac{2}{3}$, θ lies in the IV quadrant

16) Prove that $\frac{\tan\theta + \sec\theta - 1}{\tan\theta - \sec\theta + 1} = \frac{1 + \sin\theta}{\cos\theta}$

17) Prove that $(\sec A - \operatorname{cosec} A)(1 + \tan A + \cot A) = \tan A \sec A - \cot A \operatorname{cosec} A$.

IV. 5 Marks

4 x 5 = 20

18) Find all the angles between 0° and 360° which satisfy the equation $\sin^2 \theta = \frac{3}{4}$

19) Show that $\sin^2 \frac{\pi}{18} + \sin^2 \frac{\pi}{9} + \sin^2 \frac{7\pi}{18} + \sin^2 \frac{4\pi}{9} = 2$

20) If $\cot \theta (1 + \sin \theta) = 4m$ and $\cot \theta (1 - \sin \theta) = 4n$, then prove that $(m^2 - n^2)^2 = mn$

21) If θ is an acute angle, then find $\sin\left(\frac{\pi}{4} - \frac{\theta}{2}\right)$, when $\sin \theta = \frac{1}{25}$

ALL THE BEST

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