(45) If XYZL is a cyclic quadrilateral , cos X = $\frac{1}{2}$ then sin (270° – Z) = ...

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

(46) In a right-angled triangle and one of its angles is $x°$, if sin $x = \frac{4}{5}$, then cos $(90 - x°)$ = ...

(a) $\frac{3}{5}$ (b) $\frac{-3}{5}$ (c) $\frac{-4}{5}$ (d) $\frac{4}{5}$

(47) If Δ ABC is an obtuse-angled triangle at A , sin A = $\frac{4}{5}$, then sin (2 A + B + C) = ...

(a) $\frac{3}{5}$ (b) $\frac{-3}{5}$ (c) $\frac{-4}{5}$ (d) $\frac{4}{5}$

(48) ABC is a right-angled triangle at B , if cos A = $\frac{1}{2}$, then the value of sin (A + B + 2 C) = ...

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

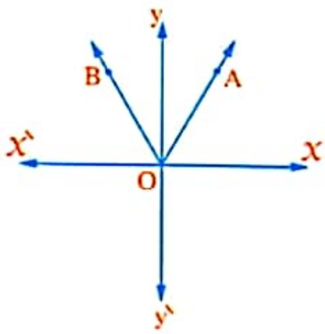
(49) If XYZ is an acute-angled triangle and tan Z = $\sqrt{3}$, then sin $(x + y + 2z)$ = ...

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

(50) If ABC is an acute-angled triangle , then cos A + cos (B + C) = ...

(a) – 1 (b) zero (c) 1 (d) $\frac{1}{2}$

(51) In the opposite figure :

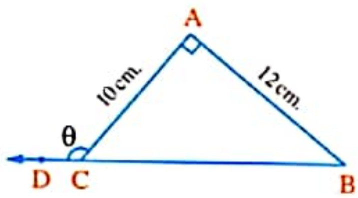


If A = $(2 , 2\sqrt{3})$, B = $(-2 , 2\sqrt{3})$, then cot $\left(180° - m(\angle AOB)\right)$ = ...

(a) 1 (b) $\frac{1}{2}$

(c) $\frac{-1}{\sqrt{3}}$ (d) $\sqrt{3}$

(52) In the opposite figure :

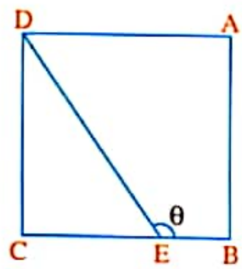


D ∈ $\overrightarrow{BC}$, AC = 10 cm. , AB = 12 cm. , then cot θ = ...

(a) $\frac{6}{5}$ (b) $-\frac{6}{5}$

(c) $\frac{5}{6}$ (d) $-\frac{5}{6}$

(53) In the opposite figure :



ABCD is a square , CE = 2 BE , then tan θ = ...

(a) $-\frac{3}{2}$ (b) $-\frac{2}{3}$

(c) $\frac{1}{2}$ (d) $\frac{2}{3}$

(9) The maximum value of the function g : g (θ) = 4 sin θ is ....

(a) 4 (b) 1 (c) zero (d) ∞

(10) The function $f : f(X) = 3 + \sin(X)$ reaches its maximum value at $X =$ ....

(a) $\frac{\pi}{3}$ (b) $\frac{\pi}{6}$ (c) $\frac{\pi}{2}$ (d) $\frac{7\pi}{6}$

(11) The function $y = \sin\left(\frac{\pi}{4} + X\right)$ has maximum value at $X =$ ....

(a) $\frac{\pi}{2}$ (b) $\frac{-\pi}{2}$ (c) $\frac{\pi}{4}$ (d) zero

(12) If $f(\theta) = 4 \sin 3\theta$, then the sum of the maximum value and the minimum value of the function $f(\theta) =$ ....

(a) 8 (b) 6 (c) 2 (d) zero

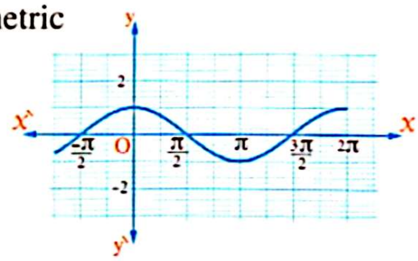
(13) The function $f : f(\theta) = 2 \sin 4\theta$ is a periodic function and its period equals ....

(a) 2π (b) π (c) $\frac{\pi}{2}$ (d) $\frac{\pi}{4}$

(14) If f is a periodic function and its period equals $\frac{\pi}{2}$, then $f(X)$ could be ....

(a) $4 \sin X$ (b) $\sin 4X$ (c) $\frac{1}{4} \sin X$ (d) $\sin \frac{1}{4} X$

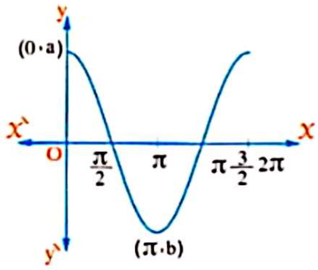
(15) The opposite figure represents the curve of the trigonometric function $y = f(X)$ then the rule of the function is ....



(a) y = sin θ (b) y = cos θ

(c) y = 2 cos θ (d) y = 2 sin θ

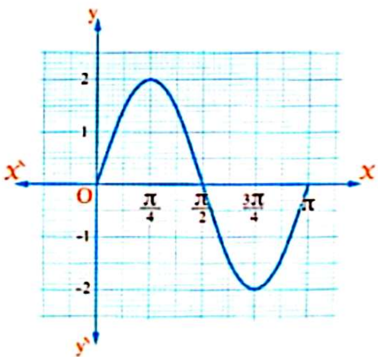
(16) If the opposite figure represents the curve of the function $f : f(X) = \cos X$, then a + b = ...



(a) 1 (b) zero

(c) π (d) 2π

(17) The opposite figure represents one cycle of the trigonometric function $y = f(X)$, then the rule of the function is ....



(a) $y = 2 \sin X$ (b) $y = \sin 2X$

(c) $y = 2 \sin 2X$ (d) $y = \sin X$

Choose the correct answer from those given :

(1) If $\theta = \sin^{-1}\frac{\sqrt{3}}{2}$, then $\theta =$ ....

(a) 60° (b) 120° (c) 240° (d) 300°

(2) If $\csc\theta = -2$, $270° < \theta < 360°$, then $\theta =$ ....

(a) 30° (b) 300° (c) 330° (d) 150°

(3) If $\tan\theta = \frac{-1}{\sqrt{3}}$, $90° < \theta < 180°$, then $\theta =$ ....

(a) 30° (b) 120° (c) 150° (d) 210°

(4) If $\tan\theta = 1.8$ and $90° \le \theta \le 360°$, then $\theta \simeq$ ....

(a) 60° 57′ (b) 119° 3′ (c) 240° 57′ (d) 299° 3′

(5) If $y = \sin(90° - \theta)$, then $\theta =$ ....

(a) $\sin^{-1} y$ (b) $\cos^{-1} y$ (c) $\sin^{-1}\theta$ (d) $\cos^{-1}\theta$

(6) If $\csc\theta = -\sqrt{2}$, then each of the following could be a value of θ except ....

(a) 45° (b) – 45° (c) – 135° (d) 225°

(7) $\sin^{-1} 0.7 \simeq$ ....

(a) 44° 25′ 37″ (b) 135° 34′ 23″ (c) 224° 25′ 37″ (d) 315° 34′ 23″

(8) $\sin^{-1}(-0.6) \simeq$ ....

(a) – 36.87° (b) 143.13° (c) 216.87° (d) 323.13°

(9) If $\cos\theta = 0.436$, where θ is the measure of the smallest positive angle , then $\theta \simeq$ ....

(a) 64° 9′ (b) 115° 51′ (c) 244° 9′ (d) 295° 51′

(10) If $\sin\theta = \frac{-1}{2}$ where θ is the measure of the smallest positive angle , then $\theta =$ ....

(a) – 30° (b) 30° (c) 210° (d) 150°

(11) If the terminal side of a directed angle θ in the standard position intersect the unit circle at $\left(\frac{-\sqrt{3}}{2}, y\right)$ where $y \in \mathbb{Z}^+$, then $\theta =$ ....

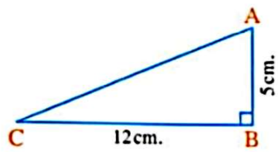
(a) 30° (b) 150° (c) 210° (d) 330°

(12) **In the opposite figure :**

$m(\angle ACB) =$ ....

(a) $\tan^{-1}\left(\frac{12}{5}\right)$ (b) $\sin^{-1}\left(\frac{12}{13}\right)$

(c) $\csc^{-1}\left(\frac{12}{13}\right)$ (d) $\cos^{-1}\left(\frac{12}{13}\right)$



(13) $\cos\left(\frac{1}{2}\right)° \times \cos^{-1}\left(\frac{1}{2}\right) \simeq$ ....

(a) 1 (b) $\frac{1}{4}$ (c) 60° (d) $\cos\frac{1}{4}$