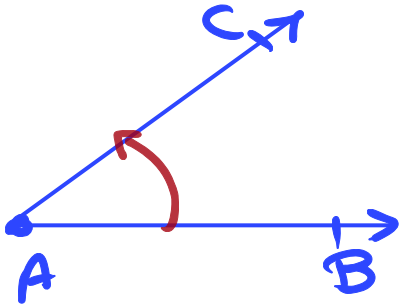
Final Revision
Trigonometry

Choose the correct answer

The ordered pair $(\overrightarrow{AB}, \overrightarrow{AC})$ represents the directed angle .....

(a) $\angle$ CAB (b) $\angle$ BAC (c) $\angle$ ABC (d) $\angle$ ACB

$\angle BAC$



Choose the correct answer

The angle in standard position of measure 585° is equivalent to the angle of measure .....°

(a) 45 (b) 135 (c) 225 (d) 315

$\theta^\circ = 585 - 360 = 225^\circ$

Choose the correct answer

The smallest positive measure for the angle 750° is .....°

(a) 120 (b) 60 (c) 45 (d) 30

$\theta = 750 - (2 \times 360) = 30^\circ$

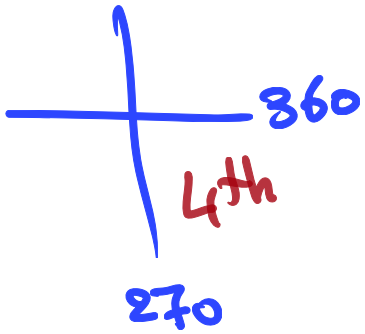
Choose the correct answer

The angle of measure (– 750°) lies in the ..... quadrant.

(a) first (b) second (c) third (d) fourth

$\theta = -750 + (3 \times 360)$

$= 330$

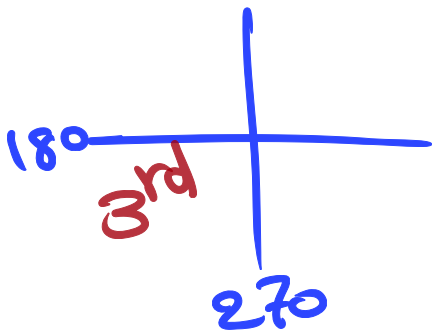


Choose the correct answer

The angle of measure $(960° - 360° n)$ where $n \in \mathbb{Z}$ in the standard position lies in the ..... quadrant.

(a) first (b) second (c) third (d) fourth

$\theta = 960 = 240$

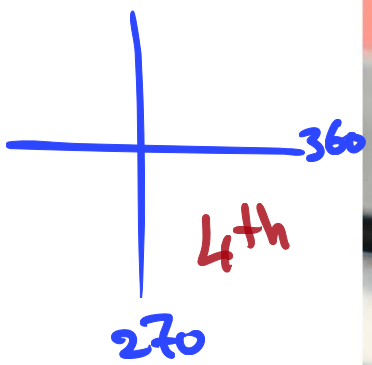


Choose the correct answer

The angle of measure $\frac{-9\pi}{4}$ lies in the ..... quadrant.

(a) first (b) second (c) third (d) fourth

$\theta^\circ = \frac{-9 \times 180}{4} = -405^\circ = 315^\circ$



Choose the correct answer

The sum of the measure of the interior angles in a pentagon , in radian = ...

(a) π (b) 2π (c) 3π (d) 5π

The Sum of measure of int. Polygon

$= (n-2) \times 180^\circ$

$= (n-2) \times \pi$

$= (5-2)\pi = 3\pi$

Pent 5
hexa 6
hepta 7
oct 8
nona 9
Dica 10

Choose the correct answer

8

The measure of the exterior angle of a regular octagon at any vertex in radian = ... rad.

(a) $\frac{\pi}{2}$ (b) $\frac{\pi}{3}$ (c) $\frac{\pi}{4}$ (d) $\frac{\pi}{5}$

One angle $= \frac{(n-2)\pi}{n} = \frac{(8-2)\pi}{8} = \frac{3}{4}\pi$

ext. $= 1\pi - \frac{3}{4}\pi = \frac{1}{4}\pi$

$= \pi/4$

Choose the correct answer

The length of the arc in a circle with radius 10 cm. and subtends central angle of measure 120° is ..... to the nearest cm.

(a) 18 (b) 21 (c) 14 (d) 12

$r = 10\,m$

$\theta^{rad} = 120° \times \frac{\pi}{180} = \frac{2}{3}\pi$

$l = \theta^{rad} \times r = \frac{2}{3}\pi \times 10 \simeq 21\,m$

Choose the correct answer

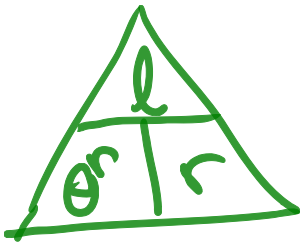
The length of the arc in a circle with diameter 12 cm. and subtends inscribed angle of measure 60° equals ..... cm.

(a) 2π (b) 4π (c) 5π (d) 9π

$r = 6$

$\theta^\circ = 120^\circ \Rightarrow \theta^{rad} = 120^\circ \times \frac{\pi}{180}$

$= \frac{2}{3}\pi$



$l = \theta^{rad} \times r = \frac{2}{3}\pi \times 6 = 4\pi$

Choose the correct answer

The circumference of the circle which has an arc of length 12 cm. and subtends an inscribed angle of measure 45° is ..... cm.

(a) 48 (b) 49 (c) 50 (d) 52

$2\pi r$

$l = 12$

$\theta = 90^\circ = \frac{\pi}{2}$

$$r = \frac{l}{\theta^{rad}} = \frac{12}{\frac{\pi}{2}} = \frac{24}{\pi}$$

$$C = 2\pi r = 2 \times \pi \times \frac{24}{\pi}$$

$$= 48$$

Choose the correct answer

If the terminal side of an angle of measure θ drawn in standard position cuts the unit circle at $\left(\frac{4}{5}, \frac{-3}{5}\right)$, then cot θ = ...

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

$(x, y) = (\cos\theta, \sin\theta) = \left(\frac{4}{5}, \frac{-3}{5}\right)$

$\cot\theta = \frac{\cos\theta}{\sin\theta} = \frac{4/5}{-3/5} = -\frac{4}{3}$

Choose the correct answer

$\tan\theta \cot\theta + \sec\theta \cos\theta - \sin\theta \csc\theta =$ ..... $1 + 1 - 1 = 1$

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

Choose the correct answer

If θ is the measure of an angle lies in the third quadrant , then which of the following is always true ?

(a) $\sin\theta \cos\theta < 0$ (b) $\sec\theta \csc\theta < 0$ (c) $\tan\theta \cot\theta < 0$ (d) $\sin\theta \tan\theta < 0$

Choose the correct answer

$x^2 + y^2 = 1$

Which of the following points does not belong to the unit circle ?

(a) $\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$ ✓ $\frac{1}{4} + \frac{3}{4} = 1$

(b) $(-1, 0)$ ✓ $1 + 0 = 1$

(c) $\left(\sqrt{2}, -\sqrt{2}\right)$ $2 + 2 = 4 \neq 1$

(d) $(-0.6, 0.8)$ ✓ $\frac{9}{25} + \frac{16}{25} = 1$

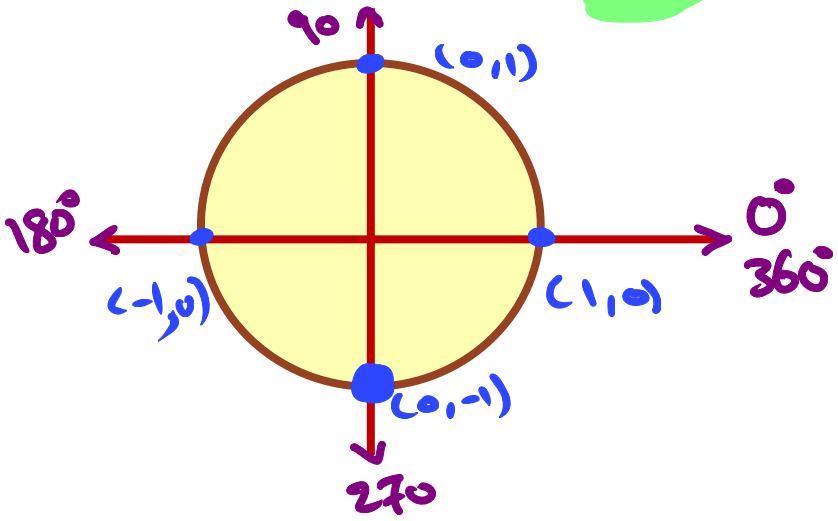
Choose the correct answer

$x^2+y^2=1$

If the terminal side of an angle of measure θ drawn in standard position cuts the unit circle at (zero , – 1) , then θ = ... °

(a) zero (b) 90 (c) 180 (d) 270

(0, -1)



Choose the correct answer

If the terminal side of angle θ drawn in standard position cuts the unit circle at $\left(\frac{\sqrt{3}}{2}, \frac{-1}{2}\right)$, then $\sin(180° - \theta) =$ .....

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

$\sin(180 - \theta) = \sin\theta = y$

$= -\frac{1}{2}$

Choose the correct answer

$\sin^{-1}\left(\frac{1}{2}\right) = 30°$

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

(a) 30 (b) 150 (c) 300 (d) 330

$\sin\theta = -\frac{1}{2}$

3rd : $180 + \overset{30}{\theta} = 210$

4th : $360 - \overset{30}{\theta} = 330$

Choose the correct answer

★ If $A + B = 90°$, $\tan A = \frac{1}{3}$, then $\tan B =$ .....

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

$\because A + B = 90°$

$\therefore \tan A = \cot B = \frac{1}{3}$

$\therefore \tan B = 3$

Another sol.

$B = 90 - A$

$\tan B = \tan(90 - A)$

$\tan B = \cot A = 3$

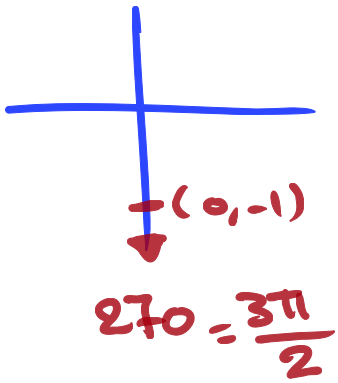
Choose the correct answer

If $\sin\theta = -1$, $\cos\theta =$ zero , then measure of angle $\theta =$ .....

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

$(x, y) = (\cos\theta, \sin\theta)$

$= (0, -1)$



Choose the correct answer

$\cos\theta + \sin(270° + \theta) =$ .....

(a) 1 (b) zero (c) $2\sin\theta$ (d) $\sin\theta\cos\theta$

$\cos\theta - \cos\theta = \text{Zero}$

Choose the correct answer

In ΔABC , $\cos(A+B) =$ .....

(a) $-\sin C$ (b) $\sin C$ (c) $-\cos C$ (d) $\cos C$

$A+B+C=180$

$A+B=180-C$

$\cos(A+B)=\cos(180-C)$

$\cos(A+B)=-\cos C$

Choose the correct answer

The range of the function $f : f(x) = \frac{\cos x}{3}$ where $x \in \mathbb{R}$ is .....

(a) $\left[-\frac{1}{3}, \frac{1}{3}\right]$ (b) $[-3, 3]$ (c) $[-1, 1]$ (d) $\left[0, \frac{2}{3}\right]$

$f(x) = \frac{1}{3}\cos x$

range $= \left[-\frac{1}{3}, \frac{1}{3}\right]$

$f(x) = a\cos bx$

range $= [-a, a]$

Period $= \frac{2\pi}{|b|}$

imp

Choose the correct answer

The maximum value of the function $f(X) = 3 \sin(2X)$ occurs at $X = \ldots\ldots$

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

$b = 2$

$\frac{\pi}{4} + n\pi$

range

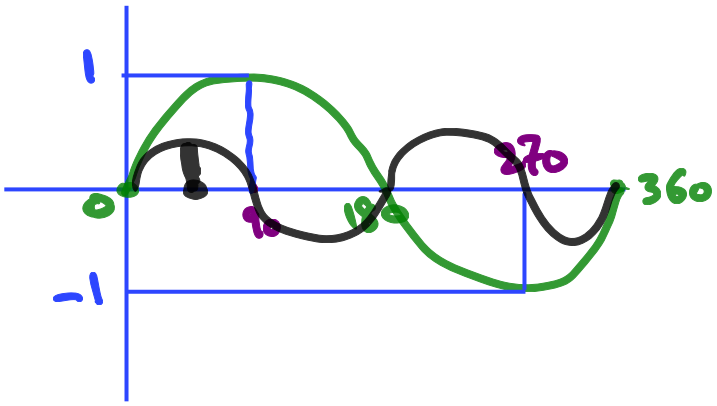
$f(x) = a \sin bx$ ← Period

max. = 1

at $= \frac{\frac{\pi}{2}}{b} + \frac{2\pi n}{b}$

min = −1

at $= \frac{\frac{3\pi}{2}}{b} + \frac{2\pi n}{b}$



Period $= \frac{2\pi}{|b|} = \frac{2\pi}{2} = \pi$

Choose the correct answer

The range of the function $f : f(x) = 3 \sin(2x) + 7$ equals .....

(a) $[-3, 3]$ (b) $[-1, 1]$ (c) $[4, 10]$ (d) $]4, 10[$

Range: $3[-1,1] + 7$

$= [-3,3] + 7$

$= [4,10]$

$f(x) = a \sin bx \pm c$

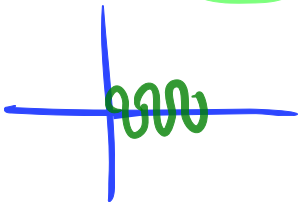
Range $= [-a, a] \pm c$

Choose the correct answer

If $f(\theta) = 2\sin(8\theta)$, then $f(\theta)$ is a periodic function and its period equals .....

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

$$\text{Period} = \frac{2\pi}{|8|} = \frac{\pi}{4}$$



Choose the correct answer

If $(3x - 5)$ is the smallest positive measure , $(3y - 5)$ is the greatest negative measure of two equivalent angles , then $x - y =$ .....°

(a) 360 (b) 180 (c) 120 (d) 90

$3x - 5 - 360 = 3y - 5$

$3x - 3y = 360 \quad \div 3$

$x - y = 120°$

Choose the correct answer

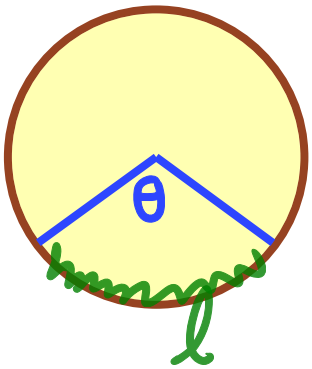
If the length of an arc in a circle equals $\frac{4}{9}$ of the circumference of the circle , then the measure of the central angle subtends this arc is .....

$\frac{4}{9} \times 360 = 160°$

(a) 40 (b) 80 (c) 100 (d) 160

θ = Part $\times$ 360

l = Part $\times 2\pi r$



$\frac{1}{2} \times 360$

$\frac{1}{2} \times 2\pi r$

$\frac{1}{4} \times 2\pi r$

$\frac{1}{4} \times 360$

Choose the correct answer

$60° \times \frac{\pi}{180} = \frac{\pi}{3}$

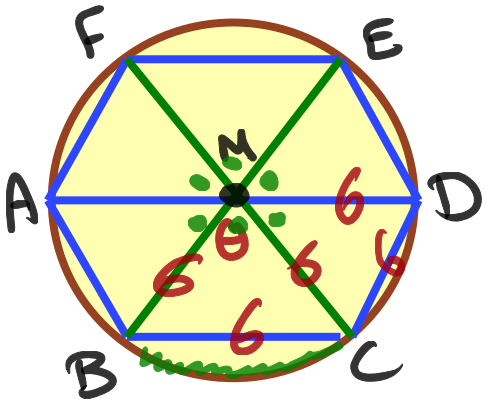
ABCDEF is a regular hexagon , the length of its side is 6 cm. , if the hexagon is inscribed in a circle M , then the length of arc $\overset{\frown}{BC}$ equals ..... cm.

(a) 3π (b) 2π (c) π (d) 6π

$l = \theta^{rad} \times r$

$= \frac{\pi}{3} \times 6$

$= 2\pi$ cm



Choose the correct answer

The angle of tangency whose measure is 60° in a circle with diameter 8 cm. subtends an arc of length equals ..... cm.

(a) $\frac{\pi}{3}$ (b) $\frac{2\pi}{3}$ (c) $\frac{4\pi}{3}$ (d) $\frac{8\pi}{3}$

$l = \theta^{rad} \times r$

$= \frac{2\pi}{3} \times 4 = \frac{8\pi}{3}$

$\theta^{\circ} = 120$

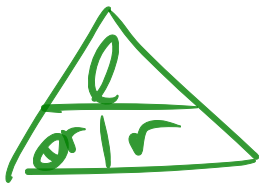
$\theta^{rad} \times \frac{120\pi}{180} = \frac{2\pi}{3}$

Choose the correct answer

Measure of the central angle subtends an arc of length π cm. in a circle whose diameter is 6 cm. equals .....

(a) $\frac{\pi}{4}$ (b) 30° (c) 15° (d) 60°

$$\theta^{rad} = \frac{l}{r} = \frac{\pi}{3} = \frac{180^\circ}{3} = 60^\circ$$



Choose the correct answer

If θ is measure of the acute angle in standard position its terminal side cuts the unit circle at (0.6 , y) , then csc θ = ... where y > zero (+ve)

(a) 0.6 (b) 0.8 (c) 1.25 (d) 1.4

$x^2+y^2=1$

$\frac{9}{25}+y^2=1$

$y^2=1-\frac{9}{25}$

$y^2=\frac{16}{25}$

$y=\frac{4}{5}$ $y=-\frac{4}{5}$ (rej.)

(0.6, 0.8)

$\csc\theta=\frac{1}{\sin\theta}=\frac{1}{y}=\frac{1}{0.8}$

$=\frac{5}{4}=1.25$

Choose the correct answer

If the terminal side of a directed angle in standard position cuts the unit circle at $(-x, x)$ where $x <$ zero, then the sine of this angle = ...

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

$x^2+y^2=1$

$x^2+x^2=1$

$2x^2=1$

$x^2=\frac{1}{2}$

$x=\frac{1}{\sqrt{2}}$ rd or $x=-\frac{1}{\sqrt{2}}$

$\left(\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}\right)$

$\sin\theta = y = -\frac{1}{\sqrt{2}}$

Choose the correct answer

If the terminal side of a directed angle θ in standard position cuts the unit circle at (k , 2 k) , then $\tan(\theta - \pi) =$ .....

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

$\frac{2k}{k} = 2$

$\tan(\theta - 180^\circ)$ (+360)

$= \tan(180 + \theta)$

$= \tan\theta = \frac{y}{x} = \frac{2}{1} = 2$

$\left(\frac{1}{\sqrt{5}}, \frac{2}{\sqrt{5}}\right)$ or $\left(-\frac{1}{\sqrt{5}}, -\frac{2}{\sqrt{5}}\right)$

$x^2 + y^2 = 1$

$k^2 + 4k^2 = 1$

$5k^2 = 1$

$k^2 = \frac{1}{5}$

$k = \pm\frac{1}{\sqrt{5}}$

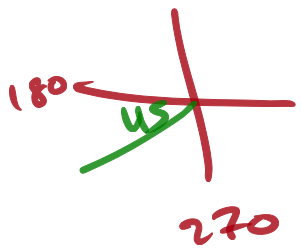
Choose the correct answer

In the unit circle , if m (∠ AOB) = 225° in standard position , then the coordinates of B are .....

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

$(x, y) = (\cos 225, \sin 225)$

$= \left(-\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}\right)$



Choose the correct answer

If the terminal side of an angle of measure θ in standard position cuts the unit circle at B $\left(x, \frac{4}{5}\right)$ where $x < 0$, then csc (90° – θ) = ...

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

$x^2 + y^2 = 1$

$x^2 + \frac{16}{25} = 1$

$x^2 = \frac{9}{25}$

$x = \frac{3}{5}$ $x = -\frac{3}{5}$

r → 3.1 ∠

$\left(-\frac{3}{5}, \frac{4}{5}\right)$

$\csc(90 - \theta) = \sec\theta$

$= \frac{1}{\cos\theta} = \frac{1}{x} = -\frac{5}{3}$

Choose the correct answer

A directed angle of measure θ in standard position cuts the unit circle at (a, b) (x, y), then $\sin\theta + \tan\theta =$ .....

(a) $a + \frac{b}{a}$ (b) $\frac{a\,b + a}{b}$ (c) $\frac{a\,b + b}{a}$ (d) $a + b$

$$\sin\theta + \tan\theta = y + \frac{y}{x}$$

$$= \frac{b}{1} + \frac{b}{a}$$

$$= \frac{ab + b}{a}$$

Choose the correct answer

ABCD is a cyclic quadrilateral and $\sin A = \frac{3}{5}$, then $\sin C =$ .....

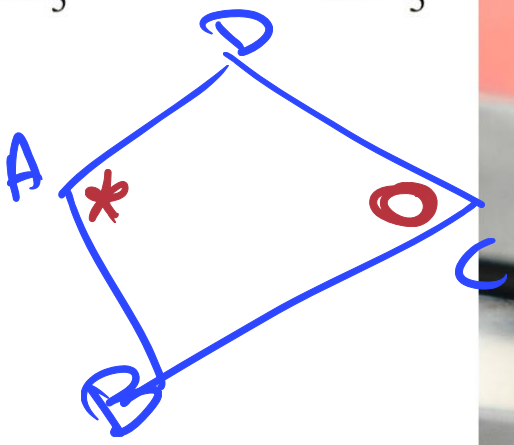
(a) $\frac{3}{5}$ (b) $-\frac{3}{5}$ (c) $\frac{4}{5}$ (d) $-\frac{4}{5}$

$A + C = 180$

$C = 180 - A$

$\sin C = \sin(180 - A)$

$\sin C = \sin A = \frac{3}{5}$



Choose the correct answer

If $\tan\theta = \frac{-5}{12}$, $\cos\theta > 0$, then θ lies in the ..... quadrant.

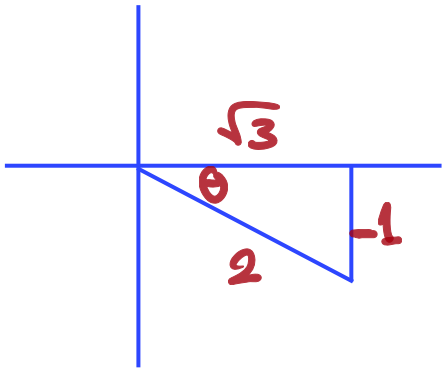
(a) first (b) second (c) third (d) fourth

Choose the correct answer

If $\cos\theta = \frac{\sqrt{3}}{2}$ where $\frac{3\pi}{2} < \theta < 2\pi$, then $\sin\theta =$ .....

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

$\sin\theta = \frac{opp.}{hyp.} = \frac{-1}{2}$



Choose the correct answer

If $\cos(90° + x) = -\frac{1}{2}$ where x is the smallest positive angle , then $x =$ .....°

(a) 30 (b) 140 (c) 120 (d) 60

$-\sin x = -\frac{1}{2}$

$\sin x = \frac{1}{2}$ → 1st : θ 30°

2nd : 180 − θ

Choose the correct answer

XYZ is a triangle in which $\sin X = \cos X$, $m(\angle Y) = 75°$, then $m(\angle Z) =$ ..... in radian.

(a) $\frac{\pi}{4}$ (b) $\frac{\pi}{6}$ (c) $\frac{\pi}{3}$ (d) $\frac{\pi}{5}$

$\sin X = \cos X$

$2X = 90$

$X = 45°$

$m(\angle Z) = 180 - [45° + 75°]$

$= 60° \times \frac{\pi}{180}$

$= \frac{\pi}{3}$

Choose the correct answer

ABC is an acute angled triangle , $\sin C = \frac{3}{5}$, then $\sin (A + B + 2C) =$ .....

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

$\sin (A+B+C+C)$

$\sin (180 + C) = -\sin C$

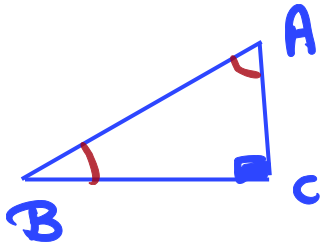
$= -\frac{3}{5}$

Choose the correct answer

ΔABC is a right angled triangle at C , $\sin A + \cos B = 1$, then $\sin 5A =$ .....

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

$A + B = 90°$



$\sin A = \cos B$

$\sin A + \cos B = 1$

$\sin A + \sin A = 1$

$2 \sin A = 1$

$\sin A = \frac{1}{2}$

$m(\angle A) = \sin^{-1}(\frac{1}{2}) = 30°$

$\sin(5 \times 30) = \sin 150 = \frac{1}{2}$

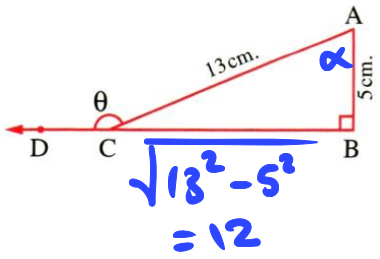
Choose the correct answer

In the opposite figure :

$D \in \overrightarrow{BC}$, then $\cos\theta =$ .....

(a) $\frac{12}{13}$ (b) $\frac{5}{13}$

(c) $\frac{-5}{13}$ (d) $-\frac{12}{13}$



$\sqrt{13^2-5^2}$

$= 12$

$\theta = 90 + \alpha$

$\cos\theta = \cos(90+\alpha)$

$\cos\theta = -\sin\alpha = -\frac{BC}{AC} = -\frac{12}{13}$

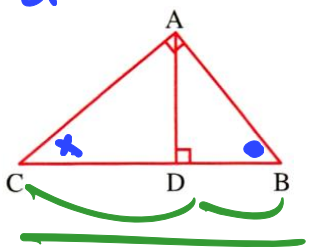
Choose the correct answer

Study

cot = adj / opp.

In the opposite figure :

If cot B + cot C = 5 , BC = 20 cm. , then AD = ... cm.



(a) 4 (b) 5

(c) 8 (d) 10

$$\frac{BD}{AD} + \frac{CD}{AD} = \frac{5}{1}$$

$$\frac{BD+CD}{AD} = \frac{5}{1}$$

$$\frac{BC}{AD} = \frac{5}{1} \Rightarrow \frac{20}{AD} = \frac{5}{1}$$

$$AD = \frac{1 \times 20}{5} = 4 \text{ cm}$$

Choose the correct answer

$\tan 1° \times \tan 2° \times \tan 3° \times \ldots\ldots\ldots\ldots \times \tan 89° = \ldots\ldots\ldots\ldots$

(a) zero (b) – 1 (c) 1 (d) undefined

$\alpha + \beta = 90$

$\tan\alpha = \cot\beta$

$\tan 1 = \cot 89$

$\tan 2 = \cot 88$

$\tan 1 = \frac{1}{\tan 89}$

Choose the correct answer

The straight line $y = 2x$ makes with the positive direction of the X-axis an angle of measure θ, then $\sin\theta \cos\theta =$ .....

(a) $\frac{1}{5}$ (b) $\frac{2}{5}$ (c) $\frac{3}{5}$ (d) $\frac{4}{5}$

$y = mx$ $m = \text{slope} = \tan\theta$

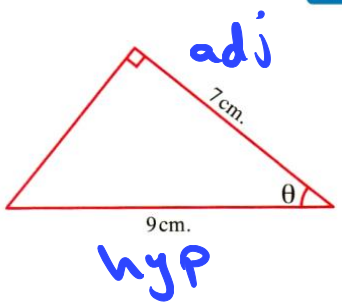
$y = 2x$

$\tan x = 2$

$\sin\theta \times \cos\theta = \frac{2}{\sqrt{5}} \times \frac{1}{\sqrt{5}} = \frac{2}{5}$

Choose the correct answer

In the opposite figure :



m (∠ θ) ≃ ..... °

(a) 51.58 (b) 37.875

(c) 38.942 (d) 52.125

$$\cos\theta = \frac{7}{9}$$

$$\theta = \cos^{-1}\left(\frac{7}{9}\right)$$

Choose the correct answer

If $\sin(2\theta) = \cos(4\theta)$ where 2θ is an acute positive angle , then $\sin(90° - 3\theta) =$ .....

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

$2\theta + 4\theta = 90°$

$6\theta = 90°$

$\theta = \frac{90°}{6} = 15°$

$\sin 45 = \frac{1}{\sqrt{2}}$

Choose the correct answer

If $\csc(3\theta + 20°) = \sec(\theta + 30°)$, then θ can be equals .....°

(a) 10 (b) 20 (c) 30 (d) 60

$3\theta + 20 + \theta + 30 = 90$

$4\theta = 90 - 50$

$4\theta = 40° \Rightarrow \theta° = 10°$

Choose the correct answer

For every $n \in \mathbb{Z}$, the solution set of the equation $\tan 2\theta = \cot \theta$ is .....

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

$$2\theta + \theta = \frac{\pi}{2} + \pi n$$

$$3\theta = \frac{\pi}{2} + \pi n \quad (\div 3)$$

$$\theta = \frac{\pi}{6} + \frac{\pi}{3} n$$

Choose the correct answer

If $\sin\theta \sec\theta = \frac{2}{3}$ where θ is the greatest positive angle , $\theta \in [0 , 2\pi[$, then $\sin(2\pi - \theta) =$ .....

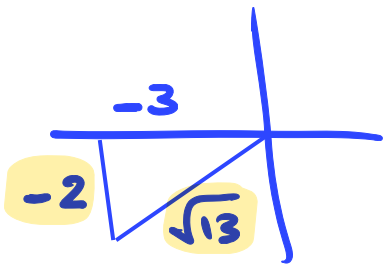
(a) $\frac{2}{5}$ (b) $-\frac{2}{5}$ (c) $\frac{2}{\sqrt{13}}$ (d) $\frac{-2}{\sqrt{13}}$

$\sin\theta \times \frac{1}{\cos\theta} = \frac{2}{3}$

$\tan\theta = \frac{2}{3}$

$\sin(2\pi - \theta) = -\sin\theta$

$= -\left[-\frac{2}{\sqrt{13}}\right] = \frac{2}{\sqrt{13}}$



Choose the correct answer

$\tan(180° + 5\theta) + \tan(270° + 4\theta) = \text{zero}$, then the value of θ which satisfies the equation where $\theta \in]0 , 90°[$ from the following is .....°

(a) 5 (b) 10 (c) 20 (d) 90

$\tan 5\theta - \cot 4\theta = 0$

$\tan 5\theta = \cot 4\theta$

$5\theta + 4\theta = 90°$

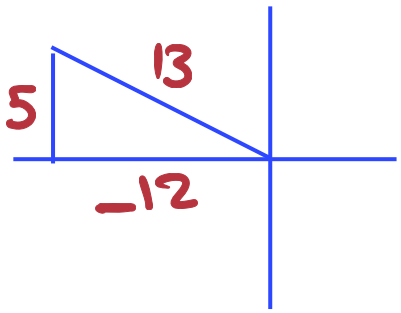
$9\theta = 90 \Rightarrow \theta = 10°$

Choose the correct answer

If $13 \sin\theta = 5$, where $\theta \in]90°, 180°[$, then the value of $\sin(270° - \theta) \times \sec(90° - \theta) =$ .....

(a) $-\frac{12}{5}$ (b) $\frac{-5}{12}$ (c) $\frac{12}{5}$ (d) $\frac{5}{12}$

$\sin\theta = \frac{5}{13}$



$-\cos\theta \times \csc\theta$

$-\left(\frac{-12}{13}\right) \times \frac{13}{5} = \frac{12}{5}$

Choose the correct answer

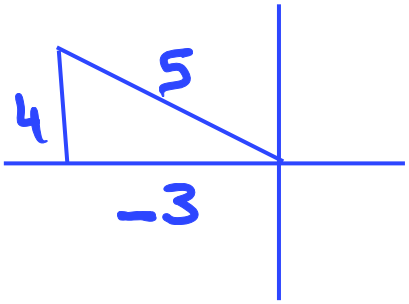
If $\sin\theta = \frac{4}{5}$, where $\theta \in]\frac{\pi}{2}, \pi[$, then $\sin(180° - \theta) + \tan(360° - \theta) + 2\sin(270° - \theta)$ equals .....

(a) $\frac{10}{3}$ (b) $-\frac{10}{3}$ (c) $\frac{13}{3}$ (d) $-\frac{13}{3}$

$\sin\theta - \tan\theta - 2\cos\theta$

$\frac{4}{5} + \frac{4}{3} + 2(\frac{3}{5})$

$= \frac{10}{3}$



Choose the correct answer

$\sin(360° - X) + \frac{\sin 15°}{\cos 75°} + \cos(270° + X) = \ldots\ldots\ldots\ldots$

(a) zero (b) 1 (c) -1 (d) $\sin X$

$-\sin X + 1 + \sin X = 1$

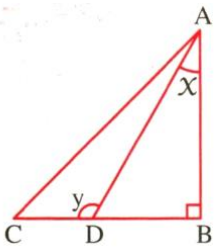
Choose the correct answer

If $\cos^2 \chi = \frac{9}{25}$, where $90° < \chi < 180°$, then $25 \sin \theta - 4 \cot \chi =$ .....

(a) 20 (b) 21 (c) 23 (d) 24

Choose the correct answer

In the opposite figure :



Δ ABC is right angled triangle at B , $\tan X = \frac{4}{3}$, then $\sin y =$ .....

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

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

Choose the correct answer

The range of the function $f : f(x) = 4 \sin x$ where $x \in [\pi , 2\pi]$ equals .....

(a) $[0 , 4[$ (b) $[0 , 4]$ (c) $[-4 , 0]$ (d) $[-4 , 4]$

Choose the correct answer

If $f(X) = a \sin(2X)$ has range $[-5, 5]$, then a = ...

(a) -5 (b) 5 (c) ± 5 (d) 10

Choose the correct answer

If $[-3, 5]$ is the range of the function $f : f(x) = a \sin x + b$ where $a > 0$, then $a + b =$ .....

(a) 8 (b) 1 (c) 2 (d) 5

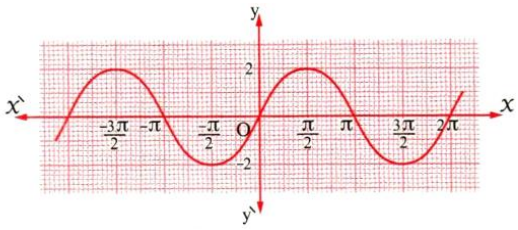
Choose the correct answer

The number of intersections between the curve of the function $y = \sin(3x)$ and the x-axis in the interval $[\text{zero}, 2\pi]$ is .....

(a) 2 (b) 7 (c) 6 (d) 3

Choose the correct answer

The opposite figure represents the graph of the function f , then $f(x)$ = ...

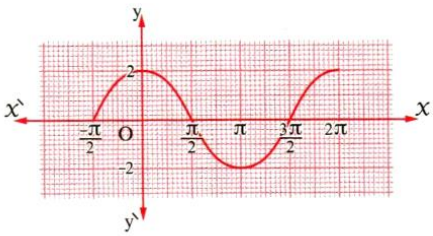


(a) $\cos 2x$ (b) $2 \cos x$

(c) $\sin 2x$ (d) $2 \sin x$

Choose the correct answer

The opposite figure represents the graph of a trigonometric function its rule is .....

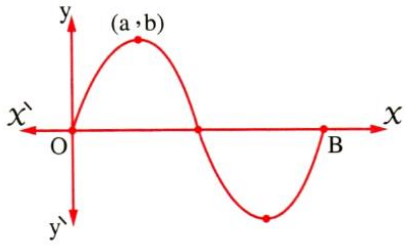


(a) $y = \sin x$ (b) $y = \cos x$

(c) $y = 2 \sin x$ (d) $y = 2 \cos x$

Choose the correct answer

In the opposite figure $f(x) = 2 \sin(3x)$ has maximum value at (a , b) , then $2 \sin(a) + b =$ .....

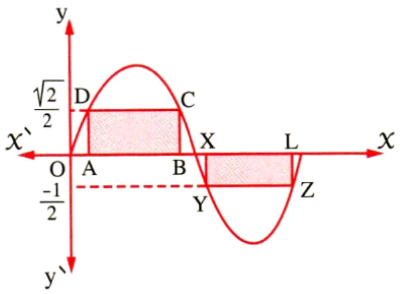


(a) 2 (b) 3

(c) 5 (d) 1

Choose the correct answer

The opposite figure represents the curve of the function $f(x) = \sin x$



, then $\frac{\text{Area of the rectangle ABCD}}{\text{Area of the rectangle XYZL}} =$ .....

(a) $\frac{3\sqrt{2}}{4}$ (b) $\frac{3\sqrt{2}}{2}$

(c) $\frac{5\sqrt{2}}{2}$ (d) $\frac{5\sqrt{2}}{4}$