Together we can make math easier

Final Revision
Trigonometry

Choose the correct answer

sin θ cos θ tan θ in the simplest form equals .....

(a) $\sin^2 \theta$ (b) $\cos^2 \theta$ (c) $\tan^2 \theta$ (d) $1 - \sin^2 \theta$

If $\tan \theta = 3$, then $\sec^2 \theta =$ .....

(a) 9 (b) 10 (c) 8 (d) 7

$(\sin\theta + \cos\theta)^2 - 2\sin\theta\cos\theta =$ ..... (in its simplest form)

(a) $2\sin\theta\cos\theta$ (b) 1

(c) 2 (d) $\sin^2\theta - \cos^2\theta$

$\frac{\cos\theta}{\sec\theta} + \frac{\sin\theta}{\csc\theta} =$ .....

(a) $\tan\theta$ (b) $\sin\theta + \cos\theta$ (c) $\sec\theta \csc\theta$ (d) 1

$\frac{\tan\theta \cot\theta}{\sec\theta}$ in the simplest form equals .....

(a) $\sin\theta$ (b) $\sec\theta$ (c) $\cos\theta$ (d) $\csc\theta$

$\sin^2 \theta + \cos^2 \theta + \tan^2 \theta =$ .....

(a) 1 (b) $\tan^2 \theta$ (c) $\cot^2 \theta$ (d) $\sec^2 \theta$

$\frac{1 - \sin^2 \theta}{1 - \cos^2 \theta}$ = ... in its simplest form.

(a) -1 (b) 1 (c) $\tan^2 \theta$ (d) $\cot^2 \theta$

Each of the following equals $(1 - \sin\theta)\left(1 + \frac{1}{\csc\theta}\right)$ except .....

(a) $\frac{1}{1 + \tan^2\theta}$ (b) $\cos^2\theta$ (c) $1 - \sin^2\theta$ (d) $\sec\theta \cot\theta$

$\sin^2\theta + \sin^2\theta \tan^2\theta =$ .....

(a) $2\sin^2\theta \tan^2\theta$ (b) $2\sin^2\theta \cot^2\theta$ (c) $\sin^2\theta$ (d) $\tan^2\theta$

If $\sin\theta - \cos\theta = \frac{4}{5}$ where $\theta \in]0 , \frac{\pi}{2}[$, then $\sin\theta \cos\theta =$ .....

(a) $\frac{1}{5}$ (b) $\frac{9}{25}$ (c) $\frac{41}{50}$ (d) $\frac{9}{50}$

If $\sin\theta + \csc\theta = 5$, then $\sin^2\theta + \csc^2\theta =$ .....

(a) 1 (b) 5 (c) 23 (d) 25

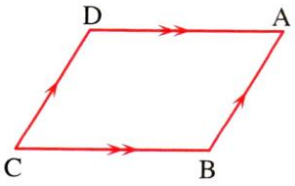
$3 \tan \theta \cot \theta + 2 \sin \theta \csc \theta + \cos \theta \sec \theta =$ .....

(a) 1 (b) 3 (c) 5 (d) 6

In the given figure :

ABCD is a parallelogram , then

cos A + cos B + cos C + cos D = ...



(a) – 1 (b) zero (c) 1 (d) 4

If $3 \sin \theta + 4 \cos \theta = 5$, then $3 \cos \theta - 4 \sin \theta =$ .....

(a) 5 (b) 4 (c) 3 (d) zero

If $2 \sin \theta - \sqrt{3} = 0$, where $\theta \in]0 , 2 \pi[$, then $\theta =$ .....

(a) 30° or 150°

(b) 60° or 120°

(c) 150° or 210°

(d) 120° or 240°

If the equation $2 \sin x = -\sqrt{2}$, where $x \in [90° , 270°]$, the value of x is .....

(a) 135° (b) 215° (c) 225° (d) 315°

The solution set of the equation : $\sin x + \cos x = 0$

, where $180° < x < 360°$ equals .....

(a) $\{210°\}$ (b) $\{225°\}$ (c) $\{240°\}$ (d) $\{315°\}$

The general solution of the equation : $\cos\theta = \frac{1}{2}$ is .....

(a) $\frac{\pi}{6} + \pi n$ (b) $\frac{\pi}{6} \pm 2\pi n$ (c) $\pm\frac{\pi}{3} + 2\pi n$ (d) $2\pi n \pm \frac{\pi}{4}$

If $\tan\theta = 1$, then one of the values of θ is .....

(a) $30°$ (b) $60°$ (c) $135°$ (d) $225°$

If $3^{\sin\theta} = 1$, where $\theta \in]0 , 2\pi[$, then $\theta =$ .....

(a) 45° (b) 90° (c) 180° (d) 270°

The general solution of the equation : $\cos\theta = -1$ is ..... where $n \in \mathbb{R}$

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

If $\tan\theta = 4$, then $\dfrac{\sin^2\theta + \cos^2\theta}{\sin^2\theta - \cos^2\theta} =$ .....

(a) $\dfrac{17}{15}$ (b) 1 (c) $\dfrac{-7}{15}$ (d) -1

If $2 \sin x - 1 = 0$, where x is the greatest positive angle , $x \in [0 , 360°]$, then $x =$ .....

(a) 150° (b) 315° (c) 330° (d) 30°

If $a + b = 30°$, then the numerical value of the expression :

$\sin(3a + 2b) + \sin(9a + 8b) =$ .....

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

If $\sin\theta = \frac{a}{b}$, $\theta \in]0 , \frac{\pi}{2}[$, then $\sqrt{1+\tan^2\theta} =$ .....

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

$\sin^2\left(\frac{\pi}{3}-\theta\right)+\cos^2\left(\theta-\frac{\pi}{3}\right)-1=$ .....

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

The general solution of the equation :

$3 \cot\left(\frac{\pi}{2} - \theta\right) = \sqrt{3}$ is ..... (where $n \in \mathbb{Z}$)

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

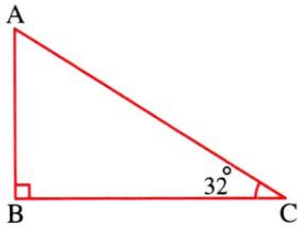
If $\csc\theta - \cot\theta = \frac{1}{5}$, then $\csc\theta + \cot\theta =$ .....

(a) $\frac{-1}{10}$ (b) 5 (c) $\frac{1}{25}$ (d) 1

In the opposite figure :

If AB = 7 cm. , m (∠ C) = 32°

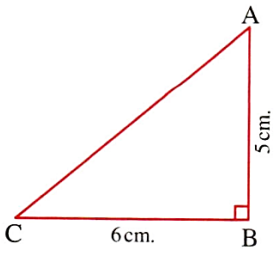
, then AC ≃ ..... cm.



(a) 13.2 (b) 8.3

(c) 3.7 (d) 5.9

In the opposite figure :



m (∠ C) = ...°

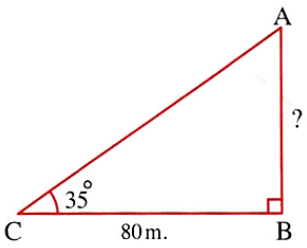
(a) $56° 27\grave{}$

(b) $39° 48\grave{}$

(c) $33° 33\grave{}$

(d) $50° 12\grave{}$

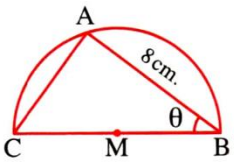
From point on the ground at the distance 80 m.
from base of a tower a man found measure
of elevation angle of top of the tower was 35°
, then the height of tower to nearest meter = ... m.



(a) 55 (b) 56

(c) 57 (d) 58

In the opposite figure :

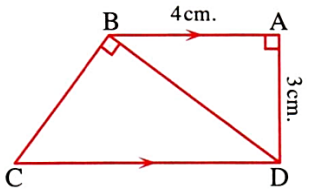


$\overline{BC}$ is a diameter in circle M , AB = 8 cm.

, m (∠ ABC) = θ° , then the area of Δ ABC = ... cm^2

(a) 8 cos θ (b) 8 cot θ (c) 32 tan θ (d) 32 sin θ

In the opposite figure :



The length of $\overline{BC}$ = ... cm.

(a) 5

(b) $6\frac{2}{3}$

(c) $3\frac{3}{4}$

(d) 3

ABC is a right-angled triangle at B , AB = 3 cm. , its perimeter = 12 cm.

, then m (∠ C) ≃ .....

(a) 37° (b) 14° (c) 18° (d) 53°

From a point on the ground surface 40 m. away from a tower base , the measure of elevation angle of the top of the tower is 72° , then the height of the tower to the nearest metre is ..... m.

(a) 120 (b) 121 (c) 122 (d) 123

A plane 1000 metres high was observed by a person at an angle of elevation of measure 40° , then the distance between the plane and the observer to the nearest metre is .....

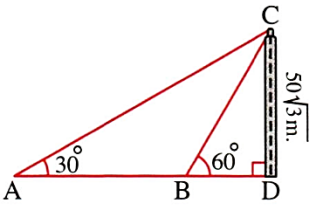
(a) 643 (b) 1192 (c) 1305 (d) 1556

From the top of a rock 50 meters high above the sea level the angle of depression of a boat 100 meters apart from the base of the rock in radian = ...

(a) 0.08 (b) 0.46 (c) 0.25 (d) 0.24

In the opposite figure :

The angle of elevation of the top of a tower of length $50\sqrt{3}$ m. is measured from two points A and B on the same horizontal line as the tower base , their measures are 30° , 60° respectively , then the distance between the two points equals ..... m.



(a) $100\sqrt{3}$ (b) $50\sqrt{3}$ (c) 100 (d) 50

In the opposite figure :

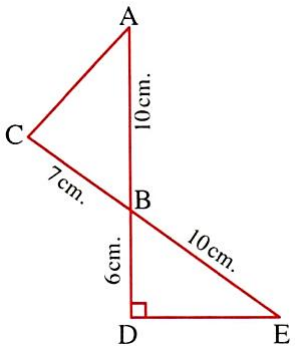
The area of Δ ABC equals ..... cm^2.

(a) 24

(b) 28

(c) 32

(d) 35



The area of the circular sector which the radius length of its circle is 4 cm. and the length of its arc is 6 cm. equals ..... cm^2.

(a) 24 (b) 12 (c) 10 (d) 8

If the perimeter of circular sector is 20 cm. and radius length of its circle equals 4 cm. , then the area of circular sector is ..... cm^2.

(a) 24 (b) 48 (c) 40 (d) 80

The perimeter of circular sector is 4r cm. where r is length of radius of its circle, then the radian measure of its central angle equals .....

(a) $\frac{1}{2}$ (b) 8 (c) 2 (d) $\frac{1}{3}$

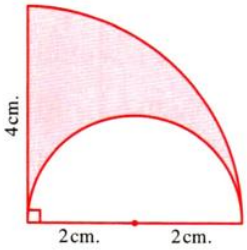
The perimeter of a circular sector is 12 cm. and its area is 9 cm^2 , then the measure of its central angle is .....

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

In the opposite figure :

The area of the shaded region

equals ..... cm^2.



(a) 8π

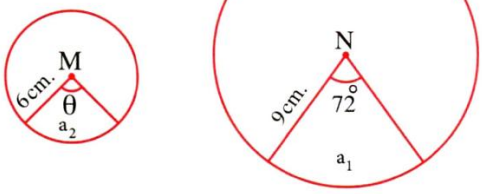
(b) 16π

(c) 4π

(d) 2π

In the opposite figure :

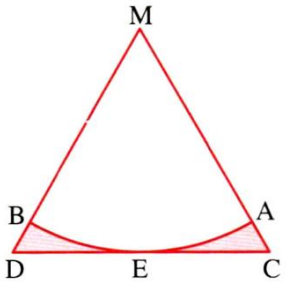
M and N are two distant circles , a_1 and a_2 are the areas of the two sectors and $\frac{a_1}{a_2} = \frac{9}{5}$, then θ = ...



(a) 72° (b) 80° (c) 90° (d) 100°

In the opposite figure :

$\overline{CD}$ is tangent to the circle M which passes through the points A , E , B , and CD = 8 cm. , MA = 11 cm. , the length of $\overset{\frown}{AEB}$ = 6 cm. , then the area of shaded part = ... cm^2.



(a) 22 (b) 18

(c) 12 (d) 11

Area of circular segment in which length of diameter of its circle 8 cm. and measure of its central angle $1.2^{rad} \approx$ ..... cm^2

(a) 8.57 (b) 2.14 (c) 4.28 (d) 1.07

The area of the circular segment which the radius length 10 cm. and length of subtended arc 5 cm. ≃ ..... cm^2.

(a) 0.13 (b) 0.51 (c) 2.05 (d) 1.03

The area of the circular segment whose chord length is 18 cm. , and the radius length of its circle 18 cm. approximately equals ..... cm^2

(a) 29 (b) 28 (c) 30 (d) 60

The area of the isosceles triangle in which the length of its base is 6 cm. and the length of one of its legs is 5 cm. equals ..... cm^2.

(a) 10 (b) 12 (c) 15 (d) 20

The area of an equilateral triangle of side length 6 cm. equals .....

(a) $6\sqrt{3}$ cm^2 (b) $9\sqrt{3}$ cm^2 (c) $12\sqrt{3}$ cm^2 (d) $18\sqrt{3}$ cm^2

The length of the side of the equilateral triangle that has an area of $36\sqrt{3}$ cm^2 equals ..... cm.

(a) $6\sqrt{3}$ (b) 24 (c) 6 (d) 12

An acute-angled triangle whose area is 14.4 cm^2 , the lengths of two sides are 6 cm. , 8 cm. , then the cosine of the angle between these two sides = ...

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

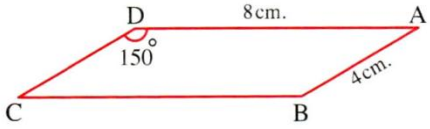
The area of the triangle whose side lengths 4 cm. , 6 cm. , 8 cm. ≃ ..... cm^2.

(a) 173.9 (b) 11.6 (c) 13.9 (d) 41.6

In the opposite figure :

ABCD is a parallelogram

it's area = ... cm^2



(a) 16 (b) 20 (c) 24 (d) 36

The area of square whose diagonal is x cm. equals ..... cm^2.

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

The area of the quadrilateral whose diagonal lengths 6 cm. , 8 cm. and measure of the included angle between them 30° equals ..... cm^2.

(a) 12 (b) 24 (c) $12\sqrt{3}$ (d) $24\sqrt{3}$

The area of the regular hexagon whose side length is x cm. equals ..... cm^2

(a) $\frac{3\sqrt{3}}{2}x^2$ (b) $\frac{3\sqrt{3}}{4}x^2$ (c) $\frac{\sqrt{3}}{2}x^2$ (d) $\frac{3}{2}x^2$

The area of the regular pentagon whose side length is 12 cm.
equals ..... cm^2 (to the nearest cm^2)

(a) 131 (b) 991 (c) 50 (d) 248

Best wishes
Mr. Michael Gamil