

TRIGONOMETRIC FUNCTIONS

53.

Convert the radian measure to degrees, or the degree measure to radians.

(a) $\frac{3\pi}{2}$

(b) 630°

(c) $\frac{11\pi}{6}$

(d) 270°

54.

Name the quadrant in which the angle θ lies when $\cos \theta < 0$ and $\tan \theta < 0$.

55.

Use trigonometric identities to simplify the expression.

(a) $\sec x \cos x$

(d) $\csc(x + 2\pi) \sin x$

(b) $\frac{1}{\sec^2 \theta - 1}$

(e) $\frac{\sin(\beta) \tan(\frac{\pi}{4} - \beta)}{\cos(\beta)}$

(c) $\frac{\sec \theta}{\csc \theta}$

(f) $\cos(\frac{5\pi}{6} - \frac{7\pi}{6})$

56.

If $\sin \theta = \frac{1}{3}$ and θ is in quadrant II, find all other trigonometric functions of θ .

57.

Find the exact values of each of the remaining trigonometric functions of θ when $\tan \theta = -\frac{1}{8}$ and $\sec \theta < 0$.

58.

Determine the amplitude and the period of the function without graphing.

(a) $y = -5 \cos(6x)$

(c) $y = \frac{1}{3} \sin(2x)$

(b) $y = 3 \sin(\pi x)$

(d) $y = \cos\left(\frac{x}{\pi}\right)$

59.

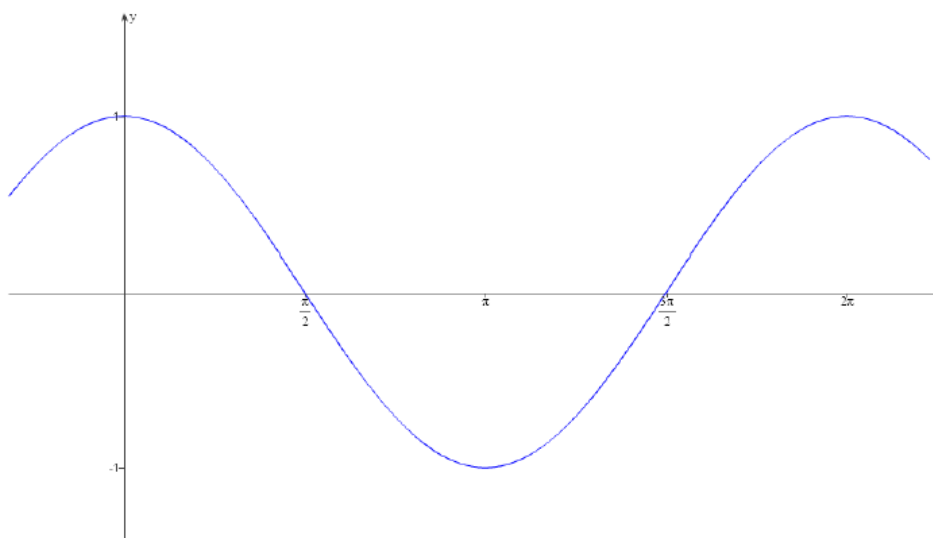
Which function matches the graph shown in the following graph ?

(a) $y = \cos x$

(b) $y = \cos 2x$

(c) $y = \sin 2x$

(d) $y = \sin x$



60.

Find $f \circ g(x)$ and $g \circ f(x)$ when $f(x) = \cos(x)$ and $g(x) = -6x$.

61.

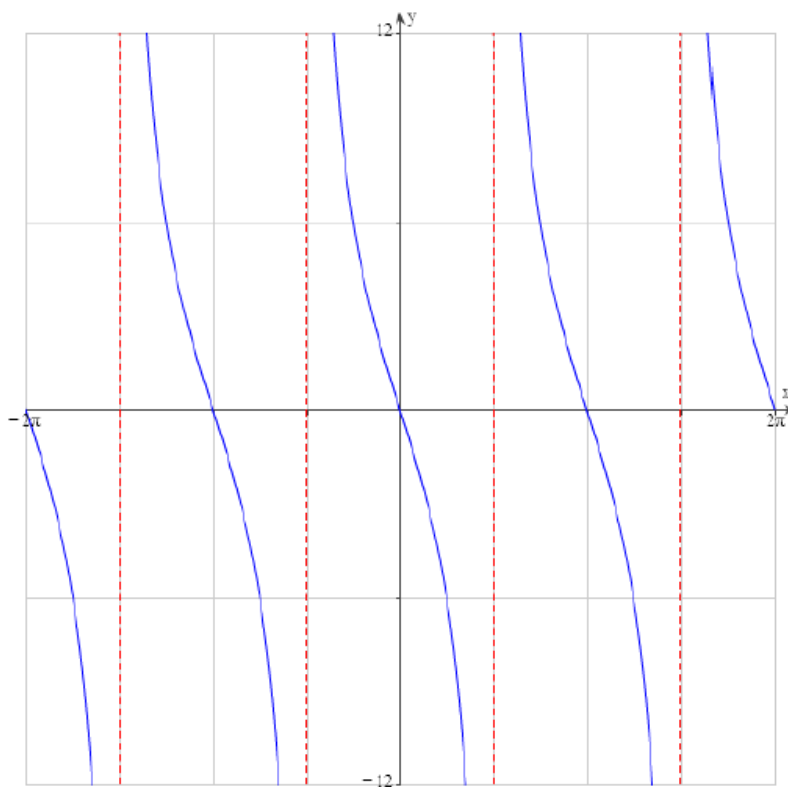
Which function matches the graph shown in the following graph ?

(a) $y = \tan x$

(b) $y = -\tan 6x$

(c) $y = -\cot x$

(d) $y = \cot 6x$



62.

Use the sum and difference identities to rewrite the following expression as a trigonometric function of a single number.

(a) $\frac{\tan 70 + \tan 45}{1 - \tan 70 \tan 45}$

(b) $\cos\left(\frac{\pi}{6}\right) \cos\left(\frac{3\pi}{5}\right) + \sin\left(\frac{\pi}{6}\right) \sin\left(\frac{3\pi}{5}\right)$

(c) $\frac{\tan \frac{5\pi}{14} + \tan \frac{2\pi}{14}}{1 - \tan \frac{5\pi}{14} \tan \frac{2\pi}{14}}$

(d) $\sin(120) \cos(30) + \cos(120) \sin(30)$

(e) $\cos\left(\frac{\pi}{4}\right) \sin\left(\frac{\pi}{3}\right) + \sin\left(\frac{\pi}{4}\right) \cos\left(\frac{\pi}{3}\right)$

63.

Use the sum and difference identities to determine the exact value of the expression $\sin(-\frac{11\pi}{6})$

64.

If $\sin \alpha = -\frac{12}{13}$ and α is in quadrant III and $\sin \beta = \frac{24}{25}$ and β is in quadrant II. Find $\cos(\alpha - \beta)$.

65.

If $\cos \alpha = \frac{8}{17}$ and α is in quadrant IV and $\cos \beta = -\frac{8}{17}$ and β is in quadrant II. Find $\sin(\alpha + \beta)$.

66.

Determine $\cos 2x$ if $\sin x = \frac{3}{5}$ and $\cos x$ is positive.

67.

Use trigonometric identities, to solve the following trigonometric equation on the interval $[0, 2\pi]$.

(a) $5 \cos(-x) = 3 \cos(x) + 1$

(b) $2 \sin^2 x - 1 = 0$