

Name \_\_\_\_\_

Key

$$y = A \text{ (trig) } (B\theta - C) + D$$

**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.

**Determine the amplitude or period as requested.**

1) Amplitude of  $y = 3 \sin x$

$|A| = |3| = 3$

A)  $2\pi$

B)  $\frac{\pi}{3}$

C) 3

D)  $3\pi$

2) Amplitude of  $y = -\frac{1}{3} \sin x$

$|A| = |-\frac{1}{3}| = \frac{1}{3}$

A)  $\frac{\pi}{3}$

B)  $-\frac{1}{3}$

C)  $\frac{1}{3}$

D) 3

3) Period of  $y = \sin 3x$

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

A)  $\frac{2\pi}{3}$

B)  $2\pi$

C) 3

D) 1

4) Period of  $y = -3 \sin 4\pi x$

$\frac{2\pi}{4\pi} = \frac{1}{2}$

A)  $4\pi$

B)  $\frac{\pi}{2}$

C)  $\frac{1}{2}$

D) 2

5) Period of  $y = 9 \sin\left(5x - \frac{\pi}{2}\right)$

$\frac{2\pi}{B} = \frac{2\pi}{5}$

A)  $\frac{2\pi}{5}$

B)  $\frac{5\pi}{2}$

C)  $\frac{5}{2}$

D)  $\frac{2}{5}$

**Determine the phase shift of the function.**

6)  $y = \frac{1}{4} \sin(5x + \pi)$

$\frac{C}{B} = -\frac{\pi}{5}$

A)  $\frac{\pi}{4}$  units to the right

B)  $-\frac{\pi}{5}$  units to the left

C)  $\frac{\pi}{5}$  units to the left

D)  $\pi$  units to the left

7)  $y = -3 \sin\left(2x - \frac{\pi}{2}\right)$

$\frac{C}{B} = \frac{\frac{\pi}{2}}{2} = \frac{\pi}{4}$

A)  $\frac{\pi}{2}$  units to the left

B)  $3\pi$  units up

C)  $\frac{\pi}{4}$  units to the right

D)  $2\pi$  units down

Determine the amplitude or period as requested.

8) Amplitude of  $y = -5 \cos \frac{1}{3}x$   $|A| = |-5| = 5$

A) 5

B)  $\frac{\pi}{5}$

C)  $6\pi$

D)  $\frac{5\pi}{3}$

9) Period of  $y = \cos 3x$

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

A)  $\frac{2\pi}{3}$

B) 3

C) 1

D)  $2\pi$

10) Period of  $y = -3 \cos \frac{1}{2}x$

$\frac{2\pi}{B} = \frac{2\pi}{\frac{1}{2}} = 4\pi$

A)  $\frac{\pi}{2}$

B)  $\frac{3\pi}{2}$

C) -3

D)  $4\pi$

11) Period of  $y = \frac{9}{8} \cos\left(-\frac{4\pi}{5}x\right)$

$\frac{2\pi}{B} = \frac{2\pi}{\frac{4\pi}{5}} = 2\pi \cdot \frac{5}{4\pi} = \frac{5}{2}$

A)  $\frac{5}{2}$

B)  $\frac{4}{9}$

C)  $\frac{9\pi}{4}$

D)  $\frac{8\pi}{5}$

even function  $\rightarrow y = \frac{9}{8} \cos \frac{4\pi}{5}x$

Determine the phase shift of the function.

12)  $y = 4 \cos\left(x + \frac{\pi}{2}\right)$

$\frac{C}{B} = \frac{-\pi/2}{1} = -\frac{\pi}{2}$

A)  $\frac{\pi}{2}$  units to the right

B)  $\frac{\pi}{2}$  units to the left

C) 4 units down

D) 4 units up

13)  $y = -2 \cos(8x + \pi)$

$\frac{C}{B} = \frac{-\pi}{8}$

A)  $2\pi$  units to the right

B)  $\frac{\pi}{8}$  units to the left

C)  $\frac{\pi}{2}$  units to the left

D)  $8\pi$  units to the right

14)  $y = -5 \cos\left(\frac{1}{4}x + \frac{\pi}{4}\right)$

$\frac{C}{B} = \frac{-\pi/4}{\frac{1}{4}} = -\pi$

A)  $\frac{\pi}{4}$  units to the left

B)  $\frac{\pi}{16}$  units to the right

C)  $5\pi$  units to the right

D)  $\pi$  units to the left

15)  $y = 4 \cos\left(-2x - \frac{\pi}{3}\right)$

$\frac{C}{B} = \frac{\frac{\pi}{3}}{-2} = \frac{\pi}{3} \cdot \frac{1}{-2} = \frac{\pi}{-6}$

A)  $\frac{\pi}{3}$  units to the left

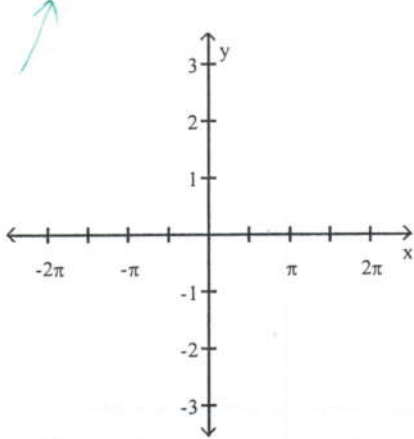
B)  $\frac{\pi}{6}$  units to the right

C)  $\frac{\pi}{3}$  units to the right

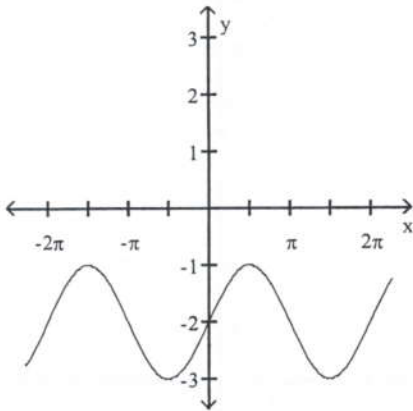
D)  $\frac{\pi}{6}$  units to the left

Use a vertical shift to graph the function.

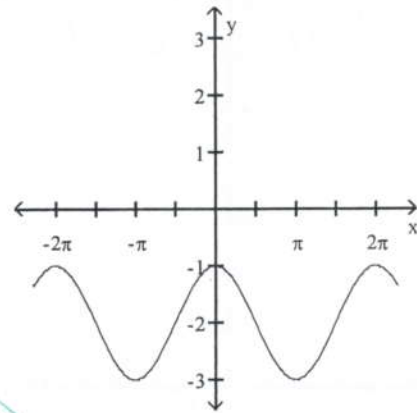
16)  $y = 2 + \sin x$



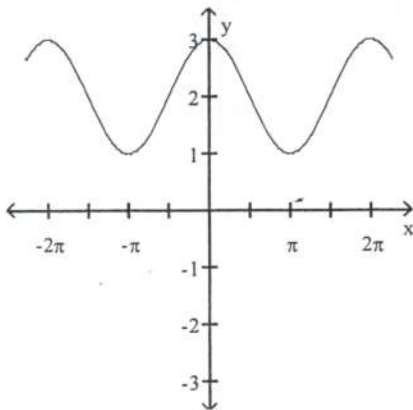
A)



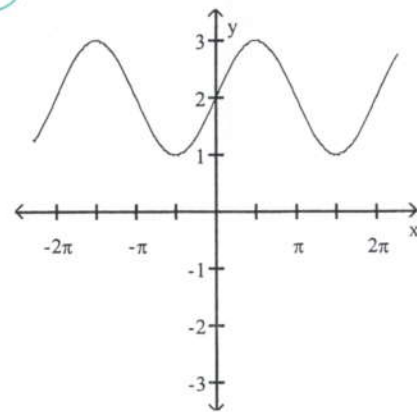
B)



C)

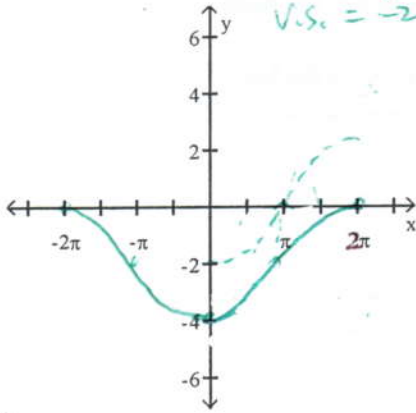


D)

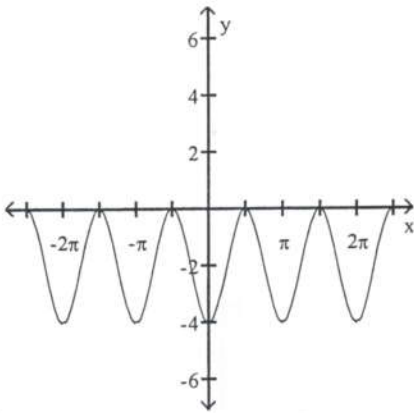


17)  $y = -2 \cos \frac{1}{2}x - 2$

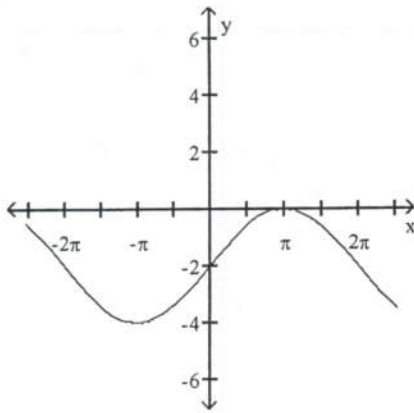
Amp: 2  
 P:  $2\pi \div \frac{1}{2} = 2\pi \cdot \frac{2}{1} = 4\pi$   
 P.S. =  $\frac{C}{B} = \text{none}$   
 V.S. = -2



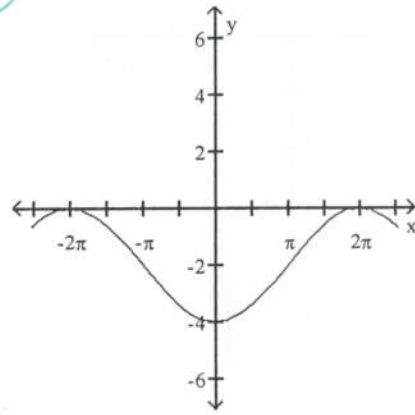
A)



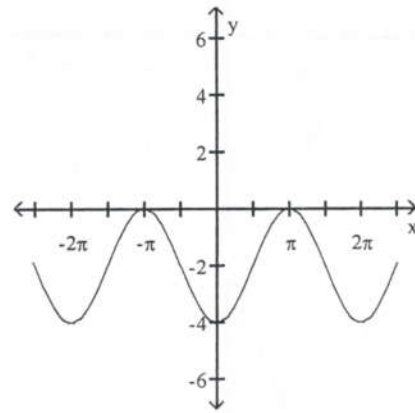
C)



B)



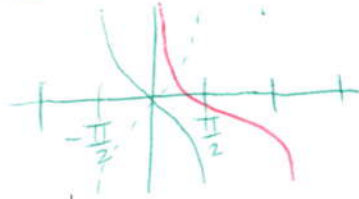
D)



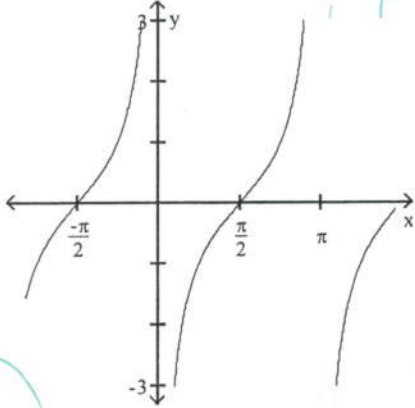
P.S. =  $\frac{\pi}{2}$

Match the function to its graph.

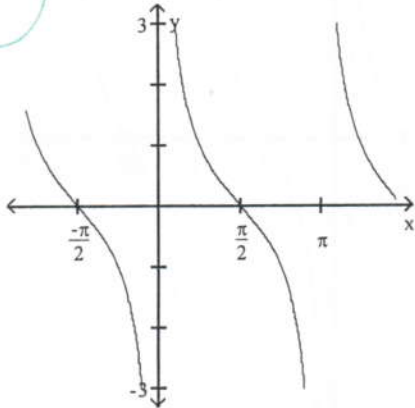
18)  $y = -\tan\left(x - \frac{\pi}{2}\right)$



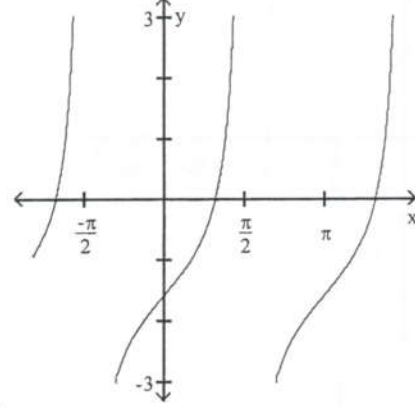
A)



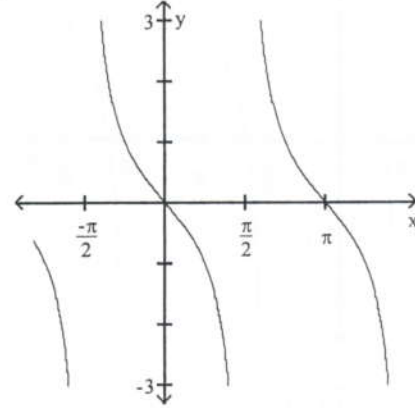
C)



B)



D)



Find the exact value of the expression.

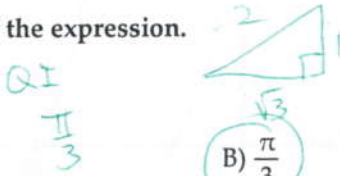
19)  $\sin^{-1}\frac{\sqrt{3}}{2}$

A)  $\frac{3\pi}{4}$

B)  $\frac{\pi}{3}$

C)  $\frac{\pi}{4}$

D)  $\frac{2\pi}{3}$



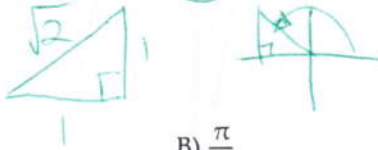
20)  $\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)$

A)  $\frac{3\pi}{4}$

B)  $\frac{\pi}{4}$

C)  $-\frac{3\pi}{4}$

D)  $-\frac{\pi}{4}$



21)  $\tan^{-1} 1$

A)  $\frac{2\pi}{3}$

B)  $\frac{\pi}{4}$

C)  $\frac{5\pi}{4}$

D)  $\frac{\pi}{3}$



Use a calculator to find the value of the expression rounded to two decimal places.

22)  $\tan^{-1}(1.8)$

A) 29.05

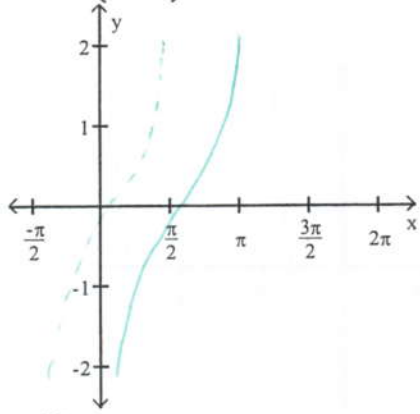
B) 60.95

C) 1.06

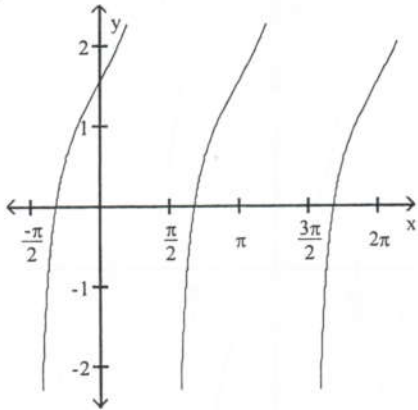
D) 0.51

Graph the function.

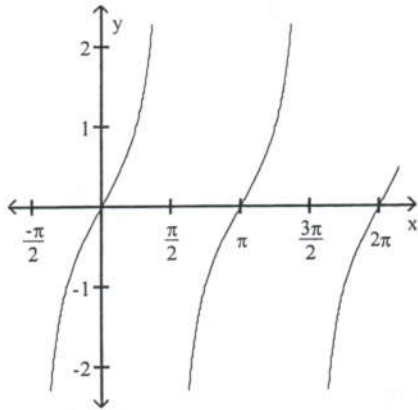
23)  $y = \tan\left(x + \frac{\pi}{2}\right)$



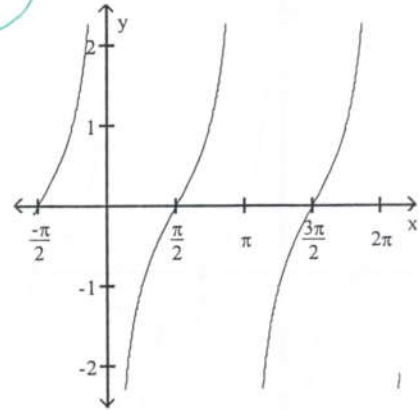
A)



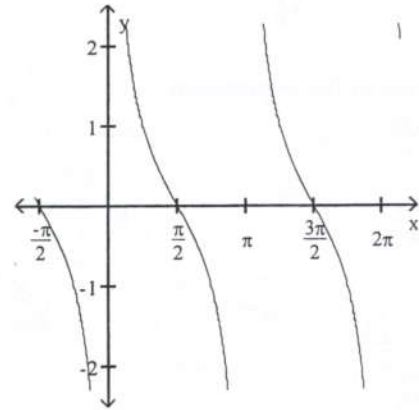
C)



B)

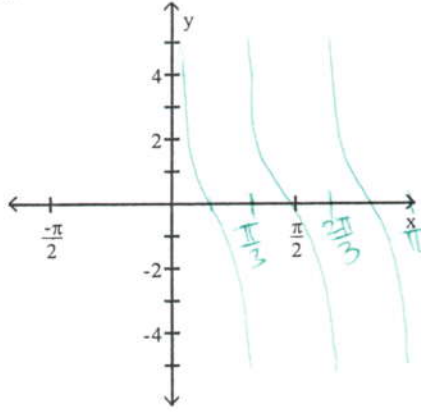


D)

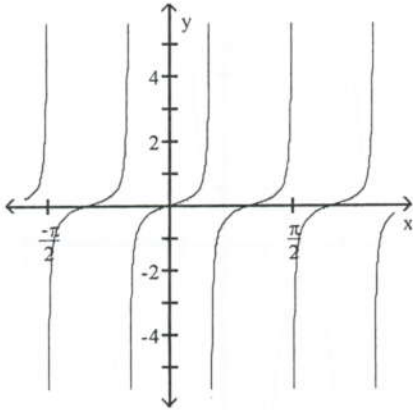


24)  $y = 4 \cot 3x$

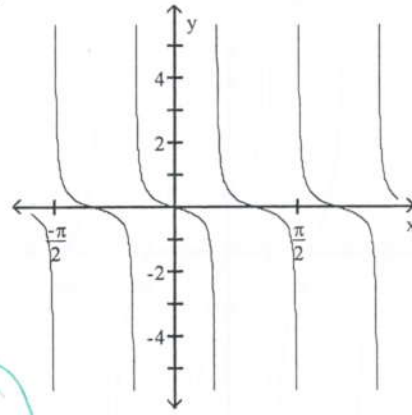
$P: \frac{\pi}{3}$



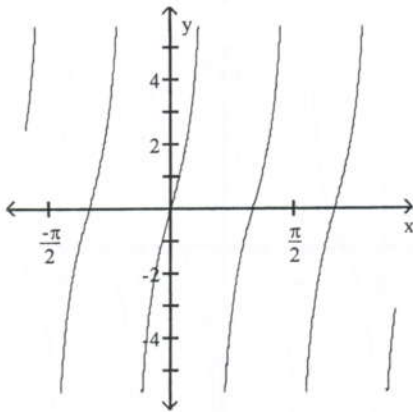
A)



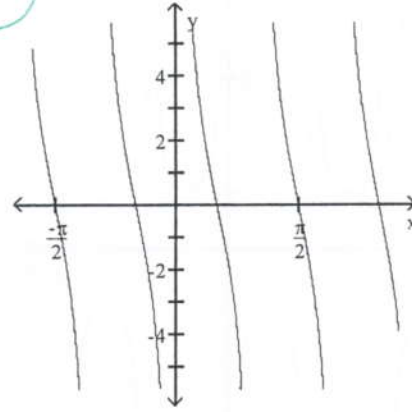
B)



C)



D)



Use a sketch to find the exact value of the expression.

25)  $\cos\left(\sin^{-1} \frac{3}{5}\right)$

A)  $-\frac{3}{5}$

B)  $\frac{4}{5}$

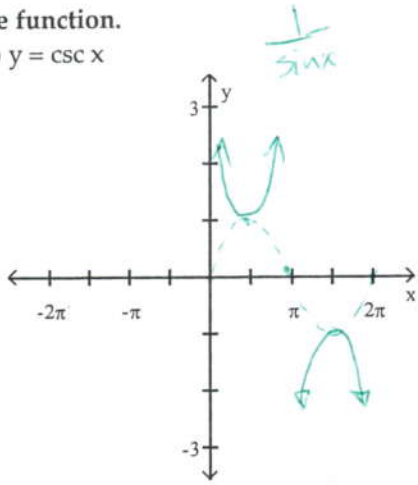
C)  $-\frac{4}{5}$

D)  $\frac{1}{5}$

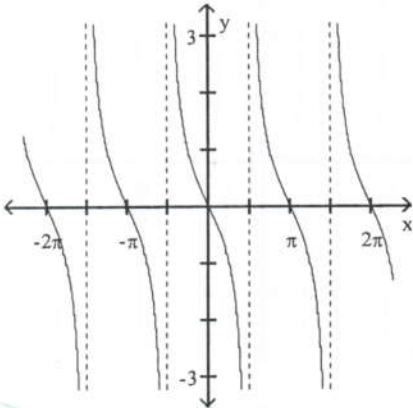


Graph the function.

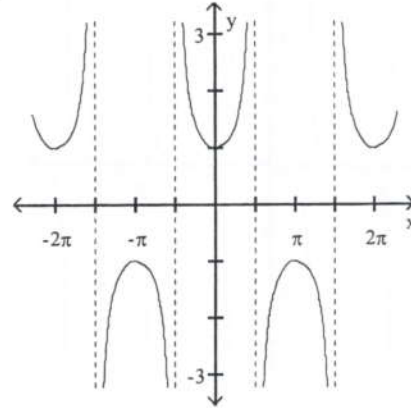
26)  $y = \csc x$



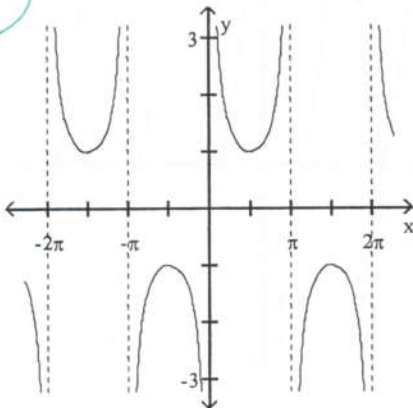
A)



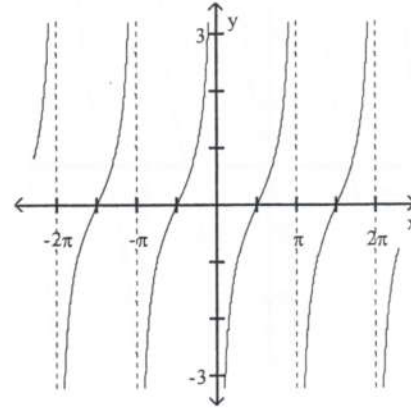
B)



C)



D)



Use a calculator to find the value of the expression rounded to two decimal places.

27)  $\cos^{-1}\left(-\frac{\sqrt{6}}{5}\right)$

A) 2.08

B) -0.51

C) -29.33

D) 119.33

Use a sketch to find the exact value of the expression.

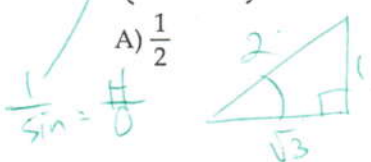
28)  $\csc\left(\tan^{-1}\frac{\sqrt{3}}{3}\right)$

A)  $\frac{1}{2}$

B)  $\sqrt{3}$

C) 2

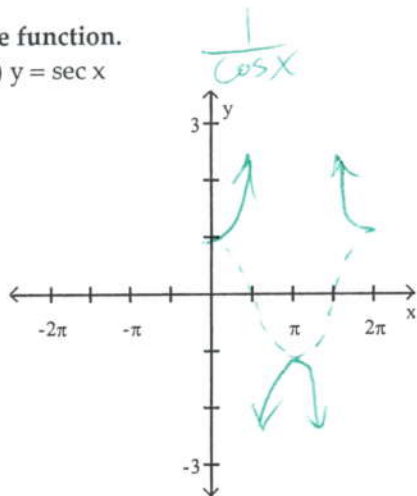
D)  $\frac{2\sqrt{3}}{3}$



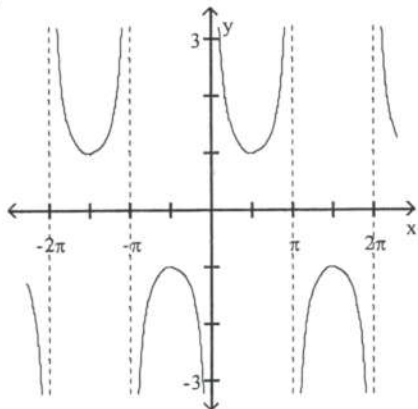


Graph the function.

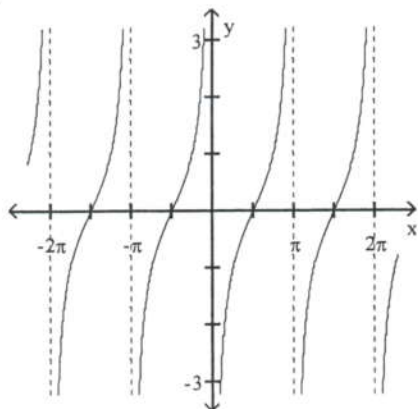
29)  $y = \sec x$



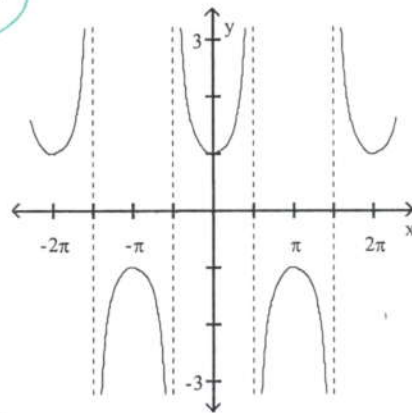
A)



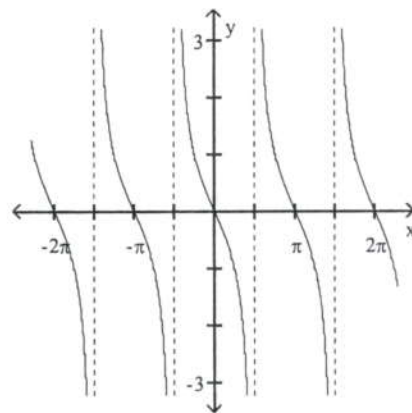
C)



B)



D)



Find the exact value of the expression, if possible. Do not use a calculator.

30)  $\tan^{-1}\left(\tan \frac{4\pi}{5}\right)$

A)  $-\frac{\pi}{5}$

B)  $\frac{6\pi}{5}$

C)  $-\frac{6\pi}{5}$

D)  $\frac{4\pi}{5}$

