

6.2 Recitation Exercises

1. Find the exact value of the following:

a) $\cos\left(\frac{-7\pi}{6}\right)$

b) $\sin\left(\frac{-7\pi}{4}\right)$

c) $\cot\left(\frac{-5\pi}{6}\right)$

d) $\sec\left(\frac{11\pi}{6}\right)$

2. If $\cos 5 = a$ and $\sin 5 = b$, then $a - b =$

A) a positive real number.

B) a negative real number.

C) zero.

D) undefined.

3. Write the first expression in terms of the second

a) $\tan x, \sin x$ where x is in Quadrant *IV*

b) $\tan x, \sec x$ where x is in Quadrant *III*

4. Determine whether the function $f(x) = \cos(-2 \sin^2 x^3)$ is even, odd, or neither.

6.3 Recitation Exercises

1. Graph the following functions:

a) $f(x) = |\sin x|$, where $-2\pi \leq x \leq 2\pi$

b) $f(x) = -6 \cos\left(-\frac{\pi}{4}x - \frac{\pi}{2}\right)$, where $-4 \leq x \leq 4$

2. If the graph of the function $f(x) = a \cos(c + bx)$ has a period of $\frac{2\pi}{3}$, a horizontal shift of $\frac{\pi}{4}$ to the left and $f(0) = 1$, then $a =$

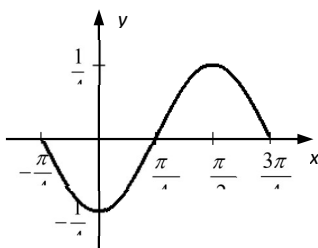
- A) 1 B) -1 C) $\sqrt{2}$ D) $-\sqrt{2}$ E) 2

3. If M is the maximum value and m is the minimum value of the function $f(x) = -3 |\sin(2\pi x - 1)| + 5$, then $M + m =$

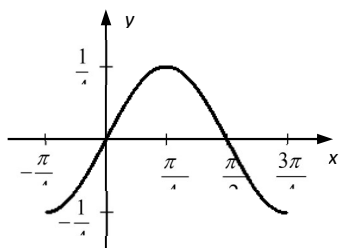
- A) 10 B) 13 C) 0 D) 3 E) 7

4. Which one of the following is the graph of $y = \frac{1}{4} \cos 2\left(x + \frac{\pi}{4}\right)$ over one period?

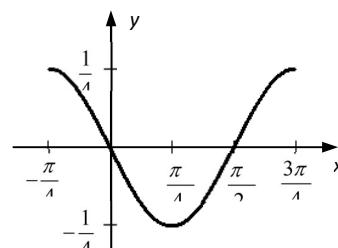
A



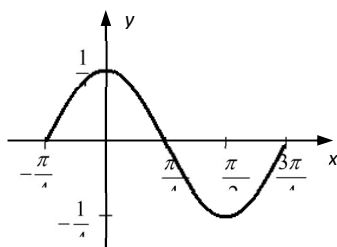
B



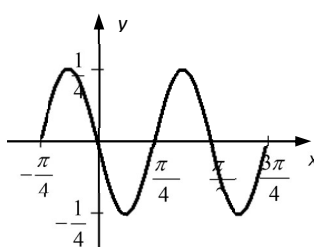
C



D



E



6.4 Recitation Exercises

- Find the interval(s) in which the graph of the function $f(x) = -\csc\left(\frac{\pi x}{2}\right)$, where $-2 < x < 2$, is increasing.
- If $a < 0$, $b > 0$ are two vertical asymptotes of the graph of the function $f(x) = 2 - \sec\left(2x + \frac{\pi}{2}\right)$ over the interval $(-\pi, \pi)$, then find the value of ab .
- The number of intersection point(s) of the graphs of $y = \tan|x|$ and $y = 1$ in the interval $\left(\frac{-3\pi}{2}, \frac{3\pi}{2}\right)$ is
 A) 2 B) 3 C) 4 D) 5 E) 6
- The graph below can be represented by the trigonometric function

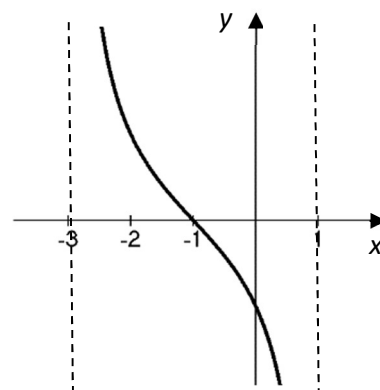
A) $f(x) = -2 \tan\left(\frac{\pi}{4}x + \frac{\pi}{4}\right)$

B) $f(x) = 2 \cot\left(\frac{\pi}{4}x + 1\right)$

C) $f(x) = 2 \cot(x + 1)$

D) $f(x) = 2 \tan\left(\frac{\pi}{4}x + \frac{\pi}{4}\right)$

E) $f(x) = -2 \tan(x + 1)$



- If the adjacent figure is the graph of the function $f(x) = a \csc(bx + c) + d$, then the value of $\frac{abcd}{\pi}$ is equal to

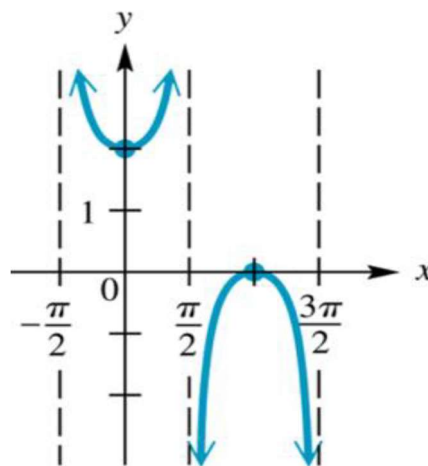
A) 1

B) 2

C) 1/2

D) -1/2

E) -2



6.5 Recitation Exercises

1. Find the exact value of each expression:

a) $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

b) $\sin^{-1}\left(\frac{\sqrt{2}}{2}\right)$

c) $\tan^{-1}(-1)$

2. Find the exact value of

a) $\cos^{-1}\left(\cos\frac{3\pi}{5}\right)$

b) $\sin^{-1}\left(\cos\frac{5\pi}{4}\right)$

c) $\tan^{-1}\left(\tan\frac{4\pi}{3}\right)$

d) $\sin^{-1}\left[\sin\frac{3\pi}{5}\right]$

e) $\cos\left(\cos^{-1}\frac{\pi}{2}\right)$

3. If the range of $y = -\cos^{-1}(2 - 7x) + k$ is $[\pi, 2\pi]$, then the value of k is equal to

A) π

B) $-\pi$

C) 2π

D) 2

E) -2

4. The domain of $y = 2 \sin^{-1}\frac{x}{3}$ is

A) $[-1,1]$

B) $[-2,2]$

C) $[-3,3]$

D) $[-6,6]$

E) $\left[-\frac{1}{3}, \frac{1}{3}\right]$