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 $-2\pi \le x \le 2\pi$

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

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 $a =$

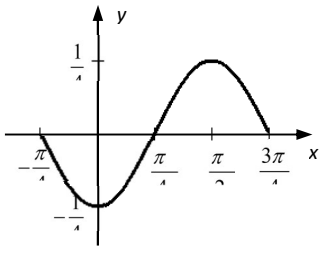
A) 1 **B)** -1 **C)** $\sqrt{2}$ **D)** $-\sqrt{2}$ **E)** 2

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 $M + m =$

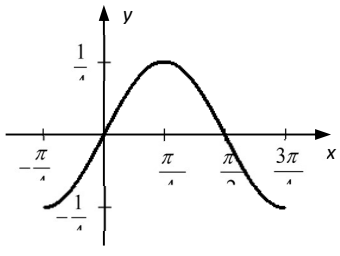
A) 10 **B)** 13 **C)** 0 **D)** 3 **E)** 7

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?

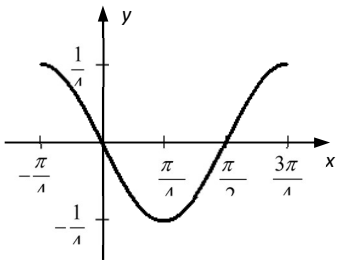
A



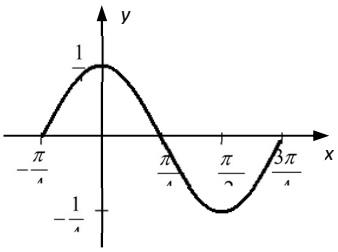
B



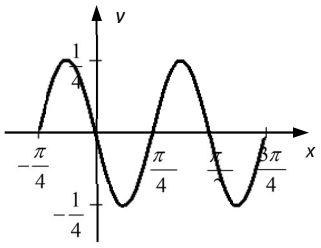
C



D



E

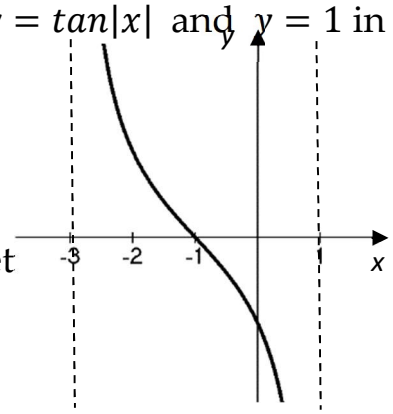


6.4 Recitation Exercises

1. 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.

2. If $\boldsymbol{a < 0}$, $\boldsymbol{b > 0}$ 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 $\boldsymbol{ab}$.

3. 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

4. The graph below can be represented by the trigonomet

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

5. 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) $\tan^{-1}(-1)$

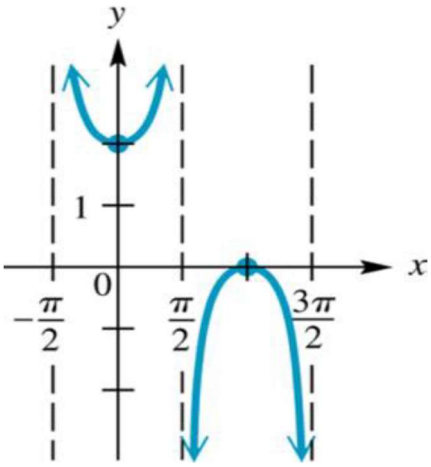
2. Find the exact value of

a) $\cos^{-1}(cos\frac{3\pi}{5})$ **b)** $\sin^{-1}(cos\frac{5\pi}{4})$ **c)** $\tan^{-1}(tan\frac{4\pi}{3})$

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)** $[-\frac{1}{3},\frac{1}{3}]$