

## 6.2 Recitation Exercises

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

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

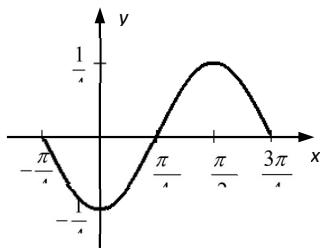
3. If  $M$  is the maximum value and  $m$  is the minimum value of the function

$f(x) = -3 |\sin(2\pi x - 1)| + 5$ , then  $M + m =$

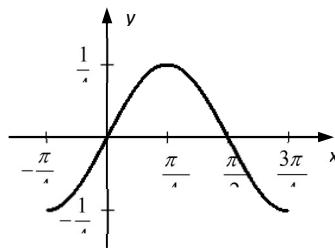
- A) 10      B) 13      C) 0      D) 3      E) 7

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?

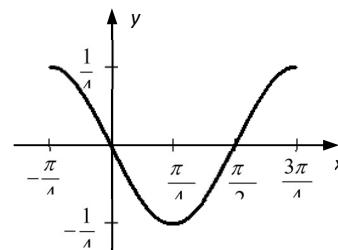
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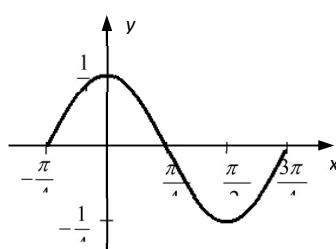
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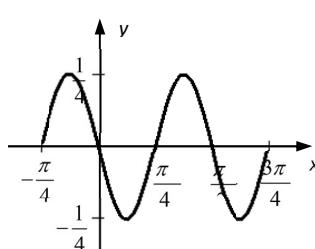
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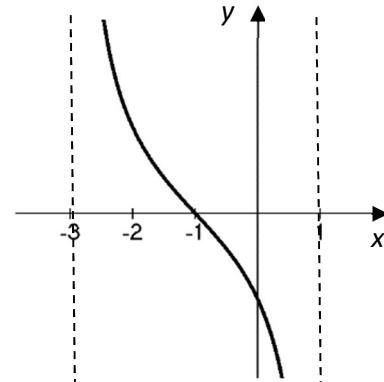


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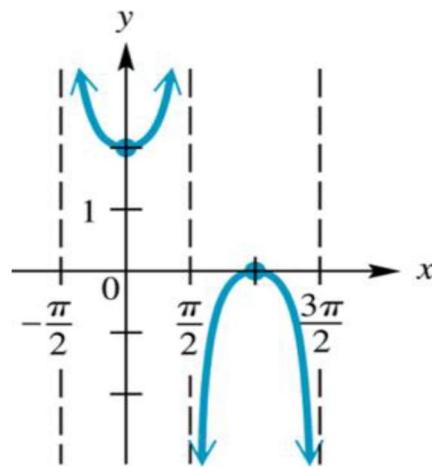


## 6.4 Recitation Exercises

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  $a < 0$ ,  $b > 0$  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  $ab$ .
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      E) 6
4. 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)  $f(x) = -2 \tan(x + 1)$



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

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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)  $\pi$       B)  $-\pi$       C)  $2\pi$       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)  $[-\frac{1}{3}, \frac{1}{3}]$