6.2 Recitation Exercises

1. Find the exact value of the following:

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

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

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

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

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) $\tan x, \quad \sin x \qquad$ where x is in Quadrant IV
   b) $\tan x, \quad \sec x \qquad$ 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
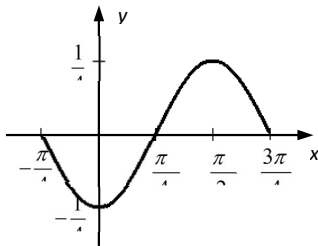
3. If M is the maximum value and m is the minimum value of the function $f(x) = -3 \, |\sin(2\pi x - 1)| + 5$, then $M + m =$
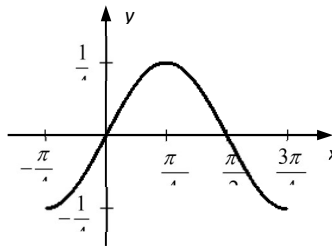
   A) 10   **B)** 13   **C)** 0   **D)** 3   **E)** 7

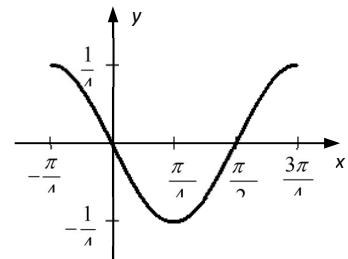**4.** Which one of the following is the graph of $y = \frac{1}{4}\cos 2\left(x + \frac{\pi}{4}\right)$ over one period?
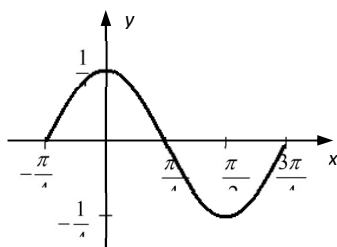
A

B

C

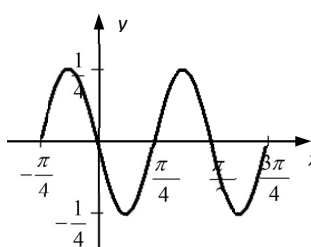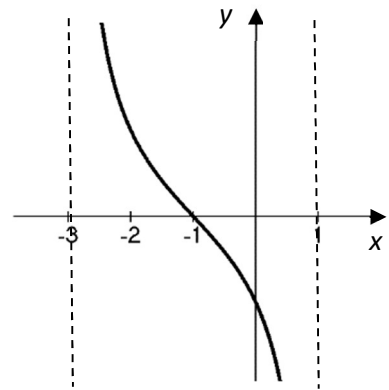
D

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 $a < 0,\ b > 0$ 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
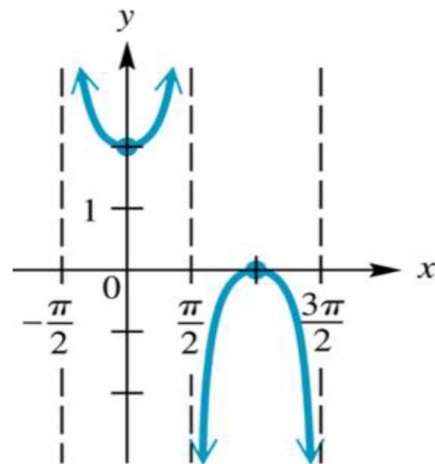
6.5 Recitation Exercises

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