

## Chapter 5 Test

BLM 5-13

*For questions 1 to 5, select the best answer.*

1. A transformed function has a maximum value of 3 and a minimum value of  $-5$ . What is its amplitude?

A 1  
 B  $-2$   
 C 4  
 D  $-1$

2. What is the minimum value of the function  $y = 3 \sin\left(x - \frac{\pi}{2}\right) + 4$ ?

A  $-1$   
 B 1  
 C 4  
 D 3

3. Consider the function

$$y = \frac{1}{3} \cos\left(\frac{1}{2}x - \frac{3\pi}{4}\right).$$

What is the phase shift of the function?

A  $\frac{\pi}{4}$  to the left  
 B  $\frac{3\pi}{4}$  to the left  
 C  $\frac{3\pi}{4}$  to the right  
 D  $\frac{3\pi}{2}$  to the right

4. Consider the function

$$y = \frac{1}{3} \cos\left(\frac{1}{2}x - \frac{3\pi}{4}\right).$$

What is the period?

A  $\pi$   
 B  $2\pi$   
 C  $3\pi$   
 D  $4\pi$

5. Which of these is a possible solution for

$$\cos x + \frac{\sqrt{3}}{2} = 0?$$

A  $-\frac{\pi}{6}$   
 B  $\frac{7\pi}{6}$   
 C  $\frac{11\pi}{6}$   
 D  $\frac{\pi}{6}$

6. a) Explain the difference between

$$\sec \frac{1}{\sqrt{2}} \text{ and } \cos^{-1}\left(\frac{1}{\sqrt{2}}\right).$$

- b) Determine a value for each of the expressions in part a).

7. Determine exact solutions for the equation  $2\sin^2 x - 3\sin x + 1 = 0$  in the interval  $x \in [0, 2\pi]$ .

8. Consider the function

$$y = -3 \sin\left(2x - \frac{5\pi}{3}\right) - 4.75.$$

- a) What is the amplitude?  
 b) What is the period?  
 c) Describe the phase shift.  
 d) Describe the vertical translation.  
 e) Sketch a graph of the function over two cycles.