Characteristics of Sine and Cosine Name _____

True or False.

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

   a. The above graph reflects across the x-axis. _____

   b. The above graph will have a phase shift to the right. _____

   c. The above graph will have a positive vertical shift. _____

2. $y = 5\cos(-2\theta) - 3$

   a. The above graph reflects across the x-axis. _____

   b. The above graph will have a phase shift to the right. _____

   c. The above graph will have a positive vertical shift. _____

Provide the requested information for each of the following.

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

   a. Period: _____

   b. Domain: _____

   c. Phase Shift: _____

   d. Range: _____

4. $y = 5\cos(-2\theta) - 3$

   a. Period: _____

   b. Domain: _____

   c. Phase Shift: _____

   d. Range: _____

5. Graph one period.

$$y = 2\cos\left(\frac{2}{3}\theta - 30^0\right) - 2$$

a. What is the range? _____

b. Using your answer to part a, how could you find the vertical shift?

c. What is the domain? _____

d. Using your answer to part c, how could you find the period?

e. Using the range…What is the maximum value? _____
What is the minimum value? _____ What is the horizontal axis? _____

f. Using your answer to part e, how could you find the amplitude?

Provide the requested information for each of the following.

6. If the range of a sine function is [12, 56], what is the vertical shift?

7. If the range of a cosine function is [-14, 6], what is the vertical shift?

8. If the domain of a cosine function is $\left[\frac{\pi}{2}, \frac{9\pi}{4}\right]$, what is the period?

9. If the domain of a sine function is $[\pi, 8\pi]$, what is the period?

10. If the horizontal axis of a cosine function is at y = -4 and the maximum value is at 2, then what is the amplitude?

11. If the horizontal axis of a sine function is at y = 5 and the minimum value of the function is at 10, then what is the amplitude?