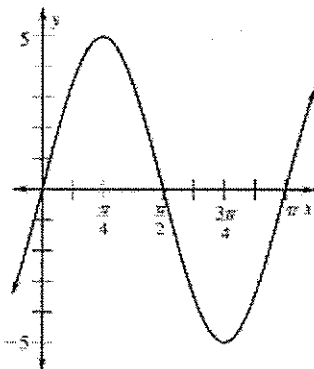


4.5 Worksheet #2-Writing Equations of Sine and Cosine Functions

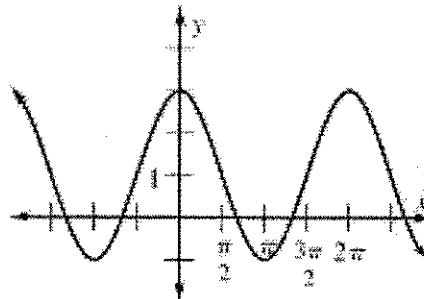
Examine the graph below and determine the amplitude, period, phase shift, and vertical shift of each using COSINE as the parent function. Then write an equation of the function.

1.



Amplitude: _____
 Period: _____
 Phase Shift: _____
 Vertical Shift: _____
 Function: _____

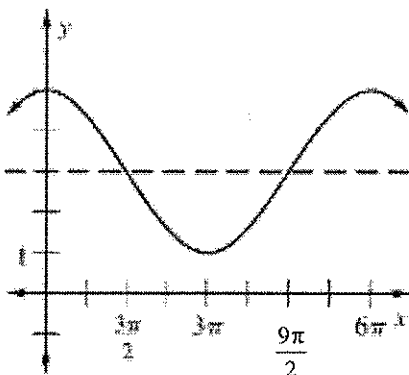
2.



Amplitude: _____
 Period: _____
 Phase Shift: _____
 Vertical Shift: _____
 Function: _____

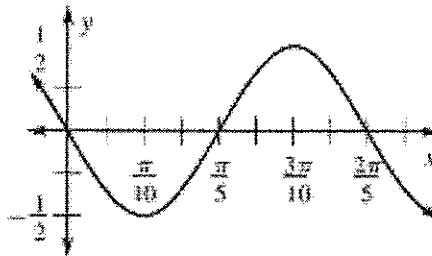
Examine the graph below and determine the amplitude, period, phase shift, and vertical shift of each using SINE as the parent function. Then write an equation of the function.

3.



Amplitude: _____
 Period: _____
 Phase Shift: _____
 Vertical Shift: _____
 Function: _____

4.



Amplitude: _____
 Period: _____
 Phase Shift: _____
 Vertical Shift: _____
 Function: _____

Identify the amplitude, period, phase shift and vertical shift of the following trig functions.

| | |
|---|---|
| <p>5. $y = -10 \cos\left(\frac{x}{6}\right)$</p> <p>Amplitude: _____</p> <p>Period: _____</p> <p>Phase Shift: _____</p> <p>Vertical Shift: _____</p> | <p>6. $y = 5 - 2 \sin\left(\frac{2x}{3}\right)$</p> <p>Amplitude: _____</p> <p>Period: _____</p> <p>Phase Shift: _____</p> <p>Vertical Shift: _____</p> |
| <p>7. $y = 3 \cos(6x + \pi)$</p> <p>Amplitude: _____</p> <p>Period: _____</p> <p>Phase Shift: _____</p> <p>Vertical Shift: _____</p> | <p>8. $y = -4 \sin\left(\frac{2}{3}x - \frac{\pi}{3}\right)$</p> <p>Amplitude: _____</p> <p>Period: _____</p> <p>Phase Shift: _____</p> <p>Vertical Shift: _____</p> |

Given the following information about each trig function, write a possible equation for each.

| | |
|--|---|
| <p>9. Sine Function</p> <p>amplitude = $\frac{1}{2}$</p> <p>period = $\frac{\pi}{3}$</p> <p>vertical shift = -4</p> | <p>10. Sine Function</p> <p>amplitude = 7</p> <p>period = 4π</p> <p>phase shift = $-\frac{\pi}{3}$</p> |
| <p>11. Cosine Function</p> <p>amplitude = 1</p> <p>period = 2π</p> <p>phase shift = $\frac{5\pi}{6}$</p> <p>vertical shift = 3</p> | <p>12. Cosine Function</p> <p>amplitude = 3</p> <p>period = π</p> <p>phase shift = $-\pi$</p> <p>vertical shift = -1.5</p> |