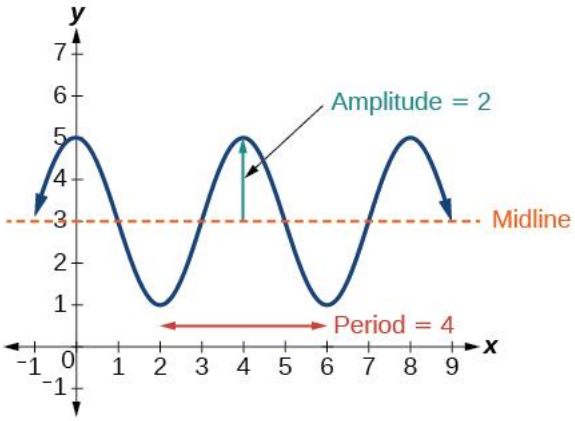
Name_____ **Hour**_____

Classwork: Applications of Sine and Cosine Functions

1) For each of the following graphs find the amplitude, period, phase shift, vertical shift and the ending value for one full cycle of output values then write the equation of the graph.



a.

Amp = _____ **Period =** _____

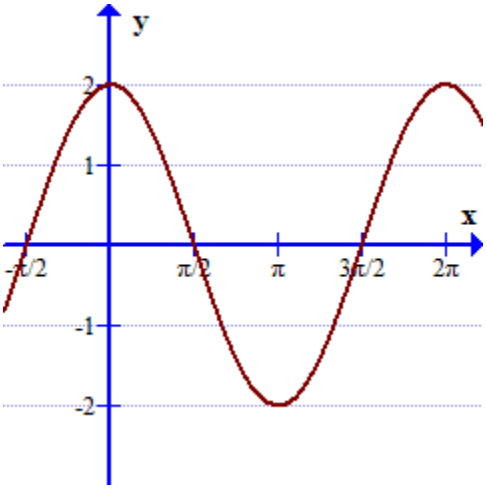
Phase Shift = _____

Vertical Shift = _____

Ending Value = _____

Equation _____

b.



Amp = _____ **Period =** _____

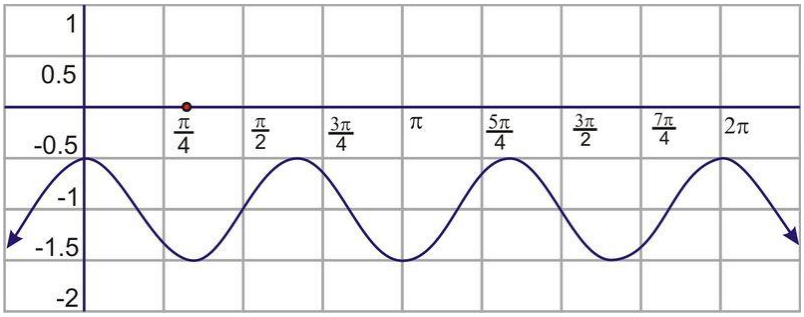
Phase Shift = _____

Vertical Shift = _____

Ending Value = _____

Equation = _____

c.



Amp = _____ **Period =** _____ **Phase Shift =** _____

Vertical Shift = _____ **Ending Value =** _____

Equation _____

2) As the paddlewheel turned, a point on the paddle blade moved in such a way that its distance, *d*, from the water's surface was a sinusoidal function of time. When a stopwatch read 4 seconds the point was at its highest, 16 feet above the water's surface. The wheel's diameter was 18 feet and it completed a revolution every 10 seconds.

a.) Write a function that expresses the distance above the water's surface in terms of time.

b.) Sketch the graph of the function for two full cycles of output values. Be sure to label the key points on the graph.

c.) What was the distance of the point above the water's surface after 5 seconds? 35 seconds? Round to three decimal places.

d.) What were the first three times when the point was 9 feet above the water's surface? Round to three decimal places.