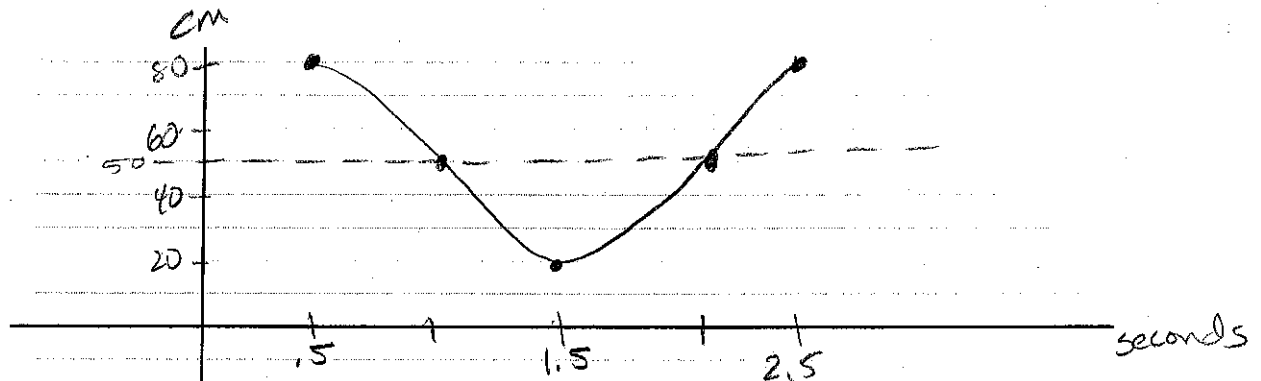


PreCalculus - Practice Quiz
Sinusoidal Applications

Name: Key
Date: _____ Period: _____

A weight attached to the end of a long spring is bouncing up and down. As it bounces, its distance from the floor varies sinusoidally with time. You start a stopwatch. When the stopwatch reads 0.5 seconds, the weight first reaches a high point 80 cm above the floor. The low point 20 cm above the floor, occurs at 1.5 seconds.

- (a) Graph and find an equation for the distance from the floor as a function of time.



amp = 30 Period = 2.5 - 0.5 = 2 $b = \frac{2\pi}{2} = \pi$ PS = 1.5 VS = 50

equation: $y = 30 \cos \pi (x - 1.5) + 50$

- (b) What is the distance from the floor when the stopwatch reads 18.2 seconds? (round to hundredth)

2nd Calc - Value $x = 18.2$ $y = 67.63 \text{ cm}$

- (c) What was the distance from the floor when you started the stopwatch?

2nd Calc - Value $x = 0$ $y = 50 \text{ cm}$

- (d) What is the first positive value of time when the weight is 64 cm above the floor? (round to hundredth)

graph $y = 64$ 2nd Calc - Intersection

$x = .15 \text{ sec.}$