

TI 83/84 Regression Activity 2

A student walks into a science museum and sees a huge ball slowly oscillating on a giant spring suspended from the ceiling. He takes out his watch and finds that at 3 seconds, the ball is 5 feet above the floor. At 5 seconds it is 4 feet above the floor... Here's all his data:

Seconds (x)	3	5	6	7	9	11	12
Feet above floor (y)	5	4	3	2	1	2	3

Use your calculator to find a function in the form $y = a \cdot \sin(bx+c)+d$ that fits this data. Then answer the other questions posed.

1. Function (2 decimal place accuracy): _____
2. What is the period of the function? _____
3. What is the amplitude of the function? _____
4. If the ball were stopped and allowed to hang motionless, how high above the floor would it hang?

5. The custodian uses a vacuum cleaner that is 10 inches high to clean the room where the ball oscillates. Can he safely use the vacuum to clean under the ball without disturbing its motion? _____. Why or why not?

6. Now sketch a graph of this function:

