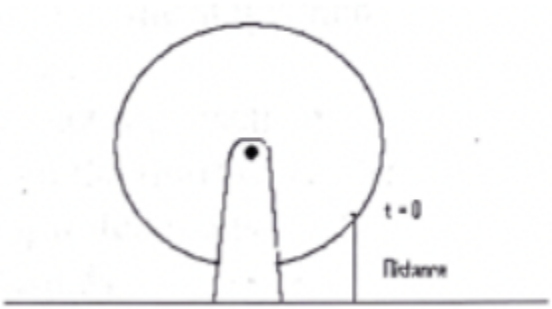
Ferris Wheel Problem

As you ride the Ferris wheel, your distance from the ground varies sinusoidally with time. When the last seat is filled and the Ferris wheel starts, your seat is at the position shown in the figure. Let t=3 sec be the number of seconds that have elapsed from the time the wheel starts turning until you first reach the top, 43 feet above the ground. The wheel makes a revolution every 8 seconds. The diameter of the wheel is 40 feet.

a. Sketch the graph of the sinusoid.
b. What is the lowest you can go as the Ferris wheel turns, and why is this number greater than zero?
c. Write the equation of this sinusoid.
d. Predict your height above the ground when:
   i. $t = 0$
   ii. $t = 6$
   iii. $t = 4\frac{1}{3}$
   iv. $t = 9$
e. What is the value of t the second time you are 18 feet above the ground?