

Problem Set

1. Suppose the ladder is 10 feet long, and the top of the ladder is sliding down the wall at a rate of 0.8 ft. per second. Compute the average rate of change in the position of the bottom of the ladder over the intervals of time from 0 to 0.5 seconds, 3 to 3.5 seconds, 7 to 7.5 seconds, 9.5 to 10 seconds, and 12 to 12.5 seconds. How do you interpret these numbers?

Input (in seconds) t	Output (in feet) d $= \sqrt{100 - (10 - 0.8t)^2}$
0	
0.5	
3	
3.5	
7	
7.5	
9.5	
10	
12	
12.5	

2. Will any length of ladder, L , and any constant speed of sliding of the top of the ladder, v ft. per second, ever produce a constant rate of change in the position of the bottom of the ladder? Explain.