

[10 pts.] SHOW ALL STEPS FOR FULL CREDIT!
 2. The table below shows the position S , of a dust particle as it moves over the course of an hour. The time t is given in minutes and the position is in feet.

Time t (minutes)	6	7	8	9	10	11
Position, S (feet)	6.3	6.9	8.4	10.4	9.5	8.6

(a) Use your calculator's regression feature, to find the cubic model that gives the position S in terms of the minutes t . Round to 2 decimal places, if needed.

(b) Use the position function from (a) to calculate the average velocity over the interval from $t = 2$ min to $t = 4$ min. Show the work!

(c) Use the shortcut rules to find the derivative $s'(t)$

(d) Find $s'(6)$ and write a sentence to explain the meaning of this quantity