MA 160 Dr. Katiraie **Interpreting the Derivative**
Section 2.3

1. Suppose it starts snowing at 12 noon. Interpret each of the following, where H(t) is the height of snow in inches as a function of time t in hours after 12 noon.

(a) $H(6) = 4$	(b) $H'(6) = 1.5$
(c) $H(20) = 13$	(d) $H'(20) = 0$
(e) (H' 23) < 0	

2. Let $S(t)$ be a child's distance from home as a function of time. Is $S'(t)$ positive, negative or zero if:

(a) The child is at home.	(b) The child is going to school.
(c) The child is at school.	(d) The child is coming home.

3. Let $h(t)$ be a person's height in inches at age t years. Write a sentence, using appropriate units, explaining the meaning of each of the following.

(a) $h(12) = 56$

(b) (h' 12) = 2.5

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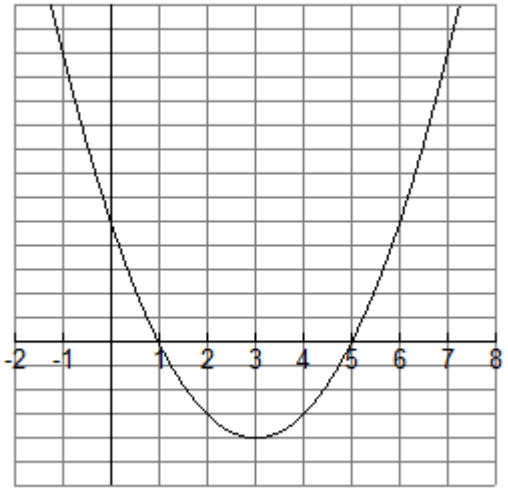
4. The graph of the function *f(x)* is shown. For each value x = a in the chart below, indicate whether $f(a)$ is positive, negative, or zero, and whether $f'(a)$ is positive negative or zero.



a	$f(a)$	$f'(a)$
-1 positive		negative
0		
1		
3		
5		
6		

5. (Based on p. 111/ #53) The table shows the estimated percentage P of the population of Brazil that are mobile-phone subscribers. (End of year estimates are given.)

Year	1997 1999 2001 2003 2005 2007					
P	2.7	8.8	16.3 25.6 46.3 63.1			

(a) Estimate the instantaneous rate of of growth in 2003 by taking the average of the two average rates of change of P from 2003 to 2005 and from 2001 to 2003. What are the units?

(b) Estimate the instantaneous rate of of growth in 2003 by finding the average rate of change of P from 2001 to 2005.