

Interpreting the Derivative

1. Let $H(t)$ be the height of snow in inches as a function of time in hours after midnight. How would a weatherman describe the following statements?

(a) $H(3) = 4$

(b) $H'(3) = 0.5$

(c) $H'(14) < 0$

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 at school.

(c) The child is coming home.

(d) The child is going to school.

3. Let $v(t)$ be velocity as a function of time.

(a) If a car is traveling at a constant velocity of 60 mph, what is the value of $v'(t)$?

(b) If the brakes are used on a car, what is the sign of $v'(t)$?

4. Let $F(t)$ be the temperature in degrees Fahrenheit as a function of time. Write a sentence using everyday language explaining the weather situation in each of the following circumstances.

(a) $F(t) > 0$ and $F'(t) < 0$

(b) $F(t) > 0$ and $F'(t) > 0$

5. 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) $h'(12) = 2.5$