

Derivatives and Rates of change

1. Let $H(t)$ be the height of snow in inches as a function of time in hours after 12 noon. Interpret each of the following using everyday language.

(a) $H(6) = 4$

(b) $H'(6) = 1.5$

(c) $H'(20) = 0$

(d) $H'(23) = -2$

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

(a) $h(12) = 56$

(b) $h'(12) = 2.5$

3. 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.

4. A particle starts by moving to the right along a horizontal line; the graph of its position function is shown.

(a) On what interval is the velocity positive? What does this mean?

(b) At what value of t is the velocity zero? What does this mean?

(c) On what interval is the velocity negative? What does this mean?

