Solve:

1) Starting at a height of 4 feet, a ball is thrown upwards with an initial velocity of 64 feet/sec. The ball's height after t seconds is $s(t) = -16t^2 + 64t + 4$. Find the average velocity from $t = 4$ to $t = 5$.

2) Starting at a height of 3 feet, a ball is thrown upwards with an initial velocity of 96 feet/sec. The ball's height after t seconds is $s(t) = -16t^2 + 96t + 3$. Find the average velocity from $t = 0$ to $t = 4$.

3) Starting at a height of 3 feet, a ball is thrown upwards with an initial velocity of 32 feet/sec. The ball's height after t seconds is $s(t) = -16t^2 + 32t + 3$. Find the average velocity from $t = 1$ to $t = 2$.

4) Starting at a height of 3 feet, a ball is thrown upwards with an initial velocity of 32 feet/sec. The ball's height after t seconds is $s(t) = -16t^2 + 32t + 3$. Find the velocity at $t = 1$.

5) Starting at a height of 1 foot, a ball is thrown upwards with an initial velocity of 32 feet/sec. The ball's height after t seconds is $s(t) = -16t^2 + 32t + 1$. Find the velocity at $t = 2$.

6) Starting at a height of 3 feet, a ball is thrown upwards with an initial velocity of 64 feet/sec. The ball's height after t seconds is $s(t) = -16t^2 + 64t + 3$. Find the velocity at $t = 1$.

7) Given the position equation: $s(t) = 4t + 3$, find the instantaneous velocity at $t = 2$.

8) Starting at a height of 3 feet, a ball is thrown upwards with an initial velocity of 128 feet/sec. The ball's height after t seconds is $s(t) = -16t^2 + 128t + 3$. Find the velocity at $t = 8$.

9) A manufacturer produces jars of peanut butter. The cost of producing x jars is C = f(x) dollars. $f(x) = 4x^2 - 5x$. Find the instantaneous rate of change of C with respect to x when x = 35.

10) The number of people in Ohio affected by the flu over September is defined by N = f(x) where x is the day of the month. What are the units of f '(x)?

11) Given the position equation: $s(t) = -5t^3 - 3t^2 - 3t - 2$, find the average acceleration from t = 1 to t = 4.

12) Given the position equation: $s(t) = 3t^3 - 3t^2 + 3t + 3$, find the average acceleration from t = 3 to t = 5.

13) Given the position equation: $s(t) = -2t^3 + 3t^2 - 3$, find the instantaneous acceleration at t = 2.

14) Given the position equation: $s(t) = 3t^3 + 4t^2 - 4t - 2$, find the instantaneous acceleration at t = 0.

15) Given the position equation: $s(t) = t^3 + t^2 + 3t - 3$, find the instantaneous acceleration at t = 2.