A particle moves according to a law of motion \( s = f(t) = t^3 - 12t^2 + 36t, \ t \geq 0, \) where \( t \) is measured in seconds and \( s \) in feet.

1. (1 point) Find the velocity at time \( t \).

2. (1 point) When is the particle at rest?

3. (2 points) When is the particle moving in the positive direction?
4. (2 points) Find the total distance traveled during the first 8 seconds.

5. (2 points) Find the acceleration at time $t$.

6. (2 points) When is the particle speeding up?