

## Section 3.3

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**Exercise 1.** A particle moves according to a law of motion

$$x(t) = 2t^3 - 9t^2 + 12t + 1$$

1. Find the velocity at time  $t$ .
2. What is the velocity after 2s?
3. When is the particle at rest?
4. When is the particle moving in the positive direction?
5. Find the total distance traveled during the first 4s.

**Exercise 2.** A stone is dropped into a lake, creating a circular ripple that travels outward at a speed of 60m/s. Find the rate at which the area within the circle is increasing after 1 s., 3s., 5s.