

**Position, Velocity, Acceleration**

**Position, Velocity, Acceleration:** Find the position, velocity, and acceleration at the given times for the given position functions. Find when the particle is stopped. Find the distance traveled and displacement between each time,  $t$ .

1.  $x(t) = t^3 - 3t^2 - 24t + 10$ ,  $t = 0, 5$

2.  $x(t) = 6t + 3\cos(t) + 5$ ,  $t = 0, \pi$

**Position, Velocity, Acceleration:** Find the total distance traveled with the given velocity.

3.  $v(t) = -6t^2 - 6t + 36$ ,  $t = 0, 5$

4. Given  $v(t) = 3t^2 - 12t - 15$ . When is the particle at rest? What is the velocity when the acceleration is zero? What is the position when the particle is at rest if  $x(0) = 12$ ?