

# HW Set 6 Equations of Motion

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## Problem 1

A car stopped at an intersection gets a green light. It accelerates at a constant rate of  $2 \text{ m/s}^2$  along a straight line. When it has traveled a distance of 40 meters,

- a. What is its speed?
- b. How much time did it take?

## Problem 2

A car traveling along a straight line at  $8 \text{ m/s}$  sees a ball roll out in front of it 40 meters away. It brakes with a constant acceleration. The car is stopped 10 meters from the ball.

- a. What is acceleration of the car?
- b. How much time did it take?

## Problem 3

A car is traveling in a straight line at  $10 \text{ m/s}$ . It accelerates at a constant rate to get up to  $20 \text{ m/s}$  over a time of 4 seconds.

- a. What is the acceleration?
- b. How far did the car travel over those 4 seconds?