

Name: \_\_\_\_\_ Block: \_\_\_\_\_

## Motion #3

These problems are a little more challenging.

1. A car starts from rest at 50 m to the west of a road sign. It travels to the east reaching  $20 \frac{\text{m}}{\text{s}}$  after 15 s. Determine the position of the car relative to the road sign.

100 m east

2. A car starts from rest at 50 m west of a road sign. It has a velocity of  $20 \frac{\text{m}}{\text{s}}$  east when it is 50 m east of the road sign. Determine the acceleration of the car.

$2 \frac{\text{m}}{\text{s}^2}$

3. During a 10 s period, a car has an average velocity of  $25 \frac{\text{m}}{\text{s}}$  and an acceleration of  $2 \frac{\text{m}}{\text{s}^2}$ . Determine the initial and final velocities of the car.

$15 \frac{\text{m}}{\text{s}}$

4. A racing car increases its speed from an unknown initial velocity to  $30 \frac{\text{m}}{\text{s}}$  over a distance of 80 m in 4 s. Calculate the initial velocity of the car and the acceleration.

$$5 \frac{\text{m}}{\text{s}^2}$$

5. A tennis ball is shot vertically upwards from the ground. It takes 3.2 s for it to return to the ground. Find the total distance the ball traveled.

$$25.088 \text{ m}$$