Motion #1

1. Larry drives **25 km** east before he realizes he is going in the wrong direction. He turns around and drives 63 000 m west.

   (a) Draw a picture.

   (b) Calculate Larry's distance and displacement.

   (c) If it takes Larry **1 hr and 45 min** to complete this trip, calculate his average speed and average velocity (in m/s).

2. Eunice has traveled 30 m through the hall when she realizes she dropped her phone in the hallway. She turns around and walks 17 m back in the direction she came from. She then turns back in her original direction, and walks 67 m to her next class. Draw a picture, and calculate Eunice's distance and displacement.

3. Draw a path where the distance and displacement are the same. Sketch your path below and *explain why they are the same.*

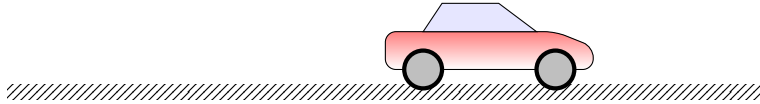4. Draw a path where the displacement is zero but the distance is not. Sketch your path below *and explain.*

5. Why can you have a negative displacement, but not a negative distance?

6. Consider a car with a *negative velocity* and *positive acceleration.*

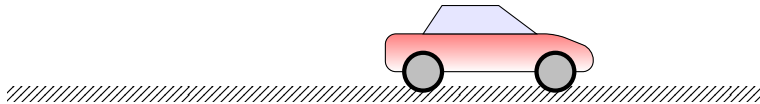   (a) Draw the velocity and acceleration vectors on this car.

   (b) Which direction is it traveling? How do you know?

   (c) Is it speeding up or slowing down? How do you know?

7. Consider a car with a *positive velocity* and *negative acceleration.*

   (a) Draw the velocity and acceleration vectors on this car.

   (b) Which direction is it traveling? How do you know?

   (c) Is it speeding up or slowing down? How do you know?