

Lab 3-2b: Velocity Vectors 1 Follow-up

- Purpose:**
1. To determine how long it takes a toy car to travel the same horizontal distance when traveling at the same speed, but with different angles.
 2. To make connections between the components of velocity and the distances traveled in those directions.

Procedure:

1. Open up the movie you analyzed in Logger Pro by simply double clicking on it.
2. Go to the beginning of the movie. For each trial, determine how long it takes the car to go from one vertical black line to the other vertical black line - pay attention to the yellow dot in the passenger seat. (Each trial starts with the yellow dot at the first black line.) Do this by simply hitting the right arrow key to advance the movie one frame, and count how many frames until the dot is at or past the opposite black line. Record the number of frames in the data section.
3. The movie ran at 30 frames per second. Figure out the number of seconds for each trial by simply dividing the number of frames by 30, and record in the data table.
4. Looking back at your results from the previous lab, copy down the components and the speeds of the car for each trial.

Data:

Time (Movie Frames) to Travel Between Black Lines

1) _____ frames 2) _____ frames 3) _____ frames

Time (Seconds) to Travel Between Black Lines

1) _____ seconds 2) _____ seconds 3) _____ seconds

Velocities for Each Trial

<i>Trial 1</i>	<i>Trial 2</i>	<i>Trial 3</i>	<i>Trial 4</i>
$v_x =$	$v_x =$	$v_x =$	$v_x =$
$v_y =$	$v_y =$	$v_y =$	$v_y =$
$ v =$	$ v =$	$ v =$	$ v =$

Question:

1. In each trial, the car had the same speed and traveled the same horizontal distance. Were the times the same? Explain why your answer makes sense.

2. For each trial, multiply the horizontal component of the velocity by the time. (You found those in the previous lab.) Record your results below. Do your results make sense?

