

### Answer on Question #40936 – Physics - Mechanics | Kinematics | Dynamics

A racecar, traveling at constant speed, makes one lap around a circular track of radius  $r$  in a time  $t$ . Determine the magnitude of the average velocity of the car for one complete lap.

#### Solution:

Remember that average velocity is related to displacement. It is  $\frac{\text{total displacement}}{\text{time}}$ . Because the racecar has traveled complete lap, total displacement is 0 (car's starting point is the same as endpoint). So then, the formula for average velocity is:

$$\frac{\text{Total displacement}}{\text{Total time}} = \frac{0}{t} = 0$$

**Answer:** magnitude of the average velocity of the car is 0.