





1. Fill in the missing information for each tire size. Find the circumference of each tire.

FACTORY INSTALLED TIRE: P245/70R16

|  |  |
| --- | --- |
| Width (mm) |  |
| Aspect Ratio (%) |  |
| Height (in.) |  |
| Diameter (in.) |  |
| Circumference (in.) |  |

LARGER TIRE: P285/75R16

|  |  |
| --- | --- |
| Width (mm) |  |
| Aspect Ratio (%) |  |
| Height (in.) |  |
| Diameter (in.) |  |
| Circumference (in.) |  |

2. After one rotation of the wheel, how many inches further has the truck with the larger tires traveled than the truck with the factory-installed tires?

3. After one rotation of the wheel, the truck with the larger tires has traveled \_\_\_\_ times further than the truck with the factory-installed tires.

4. Use the results from the table in Question 1 to assist in completing the following statements about the truck after the larger tires have been installed on it.

If the odometer reading is 2 0 0 0 0, you have actually traveled \_\_\_\_ miles.

If the speedometer reading is 60, your actual speed is \_\_\_\_ miles per hour.

Actual Speed = k ● speedometer reading (miles/hour)

5. What is the percent error in the odometer? In the speedometer readings?

6. Using the odometer readings in the truck equipped with the larger tires, you determine that the gas mileage is 18 miles per gallon. What is your actual gas mileage in miles per gallon?

7. If you were driving in the truck with the larger tires and the speedometer showed a speed of 65 miles per hour, could you be ticketed for exceeding the 65-mph speed limit by more than 5 mph? More than 10 mph? Justify your answers.

8. **REFLECTION**: What is the relationship between the ratio of an actual distance to an odometer distance of 1 mile and the ratio of the circumference of a current tire to the circumference of a factory-installed tire?

Both of these ratios are equivalent to *k*