

Evaluate: How important is a decimal place?

Name _____ Period _____ Date _____

The distance a car travels is found by multiplying the tire's circumference times the number of rotations. Remember that circumference is found by multiplying π times the diameter of the circle.

$$\text{Distance} = \text{circumference} \times \# \text{ of rotations}$$

The speed of a car is found by dividing the distance by the time it took to travel that distance.

$$\text{Speed} = \text{distance} / \text{time} \quad (12 \text{ inches} = 1 \text{ Foot}; 5280 \text{ Feet} = 1 \text{ mile})$$

1. A car has tires with a 30 inch diameter. Every minute the tires rotate 60 times. If a new car manufacturer decided to use $\pi=3.0$, how would the actual and calculated speed differ? Show all of your calculations and write an answer statement at the bottom. Be sure your units are miles per hour.

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2. Car factories calibrate their cars' speed based on the tire size. When you change the size of the tire, you cannot make adjustments to the speed calculations. You buy a car with 32 inch diameter tires, but you want to add bigger tires. You install 39 inch diameter tires. The police pull you over in a 30mph zone. Are you going too fast or too slow? By how much? Show all of your work!
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