

Problem 32

A car is traveling at a speed of 33 m/s. (a) What is its speed in kilometers per hour? (b) Is it exceeding the 90 km/h speed limit?

Solution

Multiply by the appropriate conversion factors to get the desired units.

$$33 \frac{\text{m}}{\text{s}} = 33 \frac{\cancel{\text{m}}}{\cancel{\text{s}}} \times \frac{1 \text{ km}}{1000 \cancel{\text{m}}} \times \frac{60 \cancel{\text{s}}}{1 \cancel{\text{min}}} \times \frac{60 \cancel{\text{min}}}{1 \text{ h}} \approx 120 \frac{\text{km}}{\text{h}}$$

This exceeds the 90 km/h speed limit.