How to Solve Problems

Sample Problem: A car, starting at rest, gains speed at a rate of 4 km/hr•sec. How long will it take for it to reach 38 km/hr?

Step 1: List all the givens and the unknown.

$V_i = 0$
$a = 4 \frac{km}{hr \cdot sec}$
$V_f = 38 \frac{km}{hr}$
$t = ?$

Step 2: Write the equation that combines the givens with the unknown.

$$a = \frac{V_f - V_i}{t}$$

Step 3: Rearrange the equation for the unknown, if necessary.

$$t = \frac{V_f - V_i}{a}$$

Step 4: Substitute in the givens, being sure to include the units.

$$t = \frac{38 \frac{km}{hr} - 0}{4 \frac{km}{hr \cdot sec}}$$

Step 5: Solve the problem!

$$t = \frac{38 \frac{km}{hr}}{4 \frac{km}{hr \cdot sec}} = 9.5 \text{ sec}$$

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