

8.2 Solving Problems Involving Rates

Learning Targets:

- 1) Using **unit rates** to solve problems
- 2) Using **proportions** to solve problems

Example #1: Solving a rate problem using a unit rate

A screw has 64 turns over a distance of 50 mm of thread.

Determine the number of turns in a screw with the same pattern over 40 mm of thread.
Round your answer to the nearest turn.

Step 1: set up the known unit rate (never round – keep all decimals)

Step 2: multiply the other quantity by the unit rate

Example #2: Solving a rate problem using a proportion

The dosage of an antibiotic for a person with a mass of 85 kg is 15 mL.

What dosage of antibiotic is needed for a person whose mass is 65 kg?
State the dosage to the nearest tenth of a mL.

Step 1: set up the proportion so that the units in both numerators are the same as each other, and the units in both denominators are the same as each other

Step 2: solve the proportion

Example #3:

If 15 kg of beef costs \$127.00, how much will it cost, to the nearest penny, for 25 lbs. of beef?

Example #4:

Bob burns 620 Cal in a cardio-kick-box class lasting 2 h, and 120 Cal in a body-sculpt class lasting 30 min.

If he does cardio-kick-box for 3 h, how much longer would he have to do body-sculpt to burn the same number of Calories?