MATH 5: HANDOUT 6

MORE WORD PROBLEMS

Solving Word Problems

Today we continue practicing **word problems** and how to translate them into **equations**.

General Strategy

1. Read the problem carefully and identify what is being asked.
2. Introduce a variable (x, y, ...) for the unknown quantity.
3. Translate the words into an equation involving that variable.
4. Solve the equation. If fractions are present, clear denominators by multiplying both sides.
5. Check the solution in the original problem context.

Homework

1. **Solve and simplify:**
   (a) $7 \div \frac{3}{4}$ (b) $\frac{2}{5} \div \frac{7}{3}$ (c) $\frac{3}{5} \div \frac{1}{2}$ (d) $8 \div \frac{3}{5}$ (e) $4 \div \frac{6}{5}$ (f) $6 \div \frac{9}{5}$
2. **Solve the following equations:**
   (a) $\frac{3}{4}(x+8) = 10$ (b) $\frac{1}{2}(x+1) = x - 3$ (c) $\frac{1}{2}x + \frac{1}{3}x = x - \frac{1}{12}$
3. **Solve the following equations:**
   (a) $\dfrac{x}{8} = \dfrac{3}{12}$ (b) $\dfrac{5}{x} = \dfrac{15}{18}$ (c) $\dfrac{x-2}{6} = \dfrac{4}{9}$ (d) $\dfrac{7}{x+3} = \dfrac{14}{10}$
4. Pirate captain John can drink a barrel of rum in 14 days. If he drinks together with pirate Bill, they finish the barrel in 10 days. How long would it take Bill to drink the barrel of rum alone?
5. A truck covers the distance between two cities in 10 hours. A fast car, which goes 10 mph faster than the truck, covers the same distance in 8 hours. What is the distance? *Hint: If the truck speed is x mph, then the distance is $10x$ miles.*
6. If you take half my age and add 7, you get my age 13 years ago. How old am I?
7. One can measure temperature using either the Fahrenheit scale (used in the US and Britain) or the Celsius scale (used in most other countries). The relation is

   $$C = \tfrac{5}{9}(F - 32),$$

   where C is Celsius and F is Fahrenheit.
   (a) Find a temperature that has the same value on both scales ($F = C$).
   (b) Find a temperature where the Fahrenheit reading is twice the Celsius reading ($F = 2C$).

*8. If Anne walks to school and takes the bus back, the total travel time is 1.5 hours. If she takes the bus both ways, the total time is 30 minutes. How long will her total travel time be if she walks both ways?

*9. Using five 3s, arithmetic operations, and parentheses, make five expressions that equal the values of 1 to 5.