

Part 5 Using Formulas to Solve Problems

Unit 31 Using Formulas

1. Using formulas

- A. A formula is an algebra equation which can be used to solve everyday problems.
 B. Some examples of common formulas:

Subject	Formula	Explanation
Distance	$D = rt$	Distance = (rate)(time)
Area of a Rectangle	$A = lw$	Area = (length)(width)
Simple Interest	$I = prt$	Interest = (principal)(rate)(time)
Temperature	$C = \frac{5}{9}(F - 32)$	Celsius temperature = $\frac{5}{9}$ (Fahrenheit temperature - 32)

2. Example

- A. Jane is driving 55 miles per hour (mph). How far will she travel in 6 hours?

B.

Procedures	This Example
1. Determine the unknown quantity (what you are looking for).	1. Distance is unknown
2. State the known quantities. For geometry problems, draw and label a diagram.	2. Known (often called given) rate = 55 mph time = 6 hours
3. Choose a formula that connects the known and unknown quantities.	3. $D = rt$
4. Replace formula variables with their given values.	4. $D = (55 \frac{\text{miles}}{\text{hour}})(6 \text{ hours})$
5. Solve the resulting equation and label the answer.	5. $D = 330 \text{ miles}$
6. Check the answer by proving it will balance the formula.	6. $D = rt$ $330 \text{ miles} = (55 \frac{\text{miles}}{\text{hour}})(6 \text{ hours})$ $330 \text{ miles} = 330 \text{ miles}$

Note: When using formulas, required math operations are performed to labels as well as numbers. In this problem hours/hours equals one and the answer is in miles.