# 2.2 Formulas and Percent

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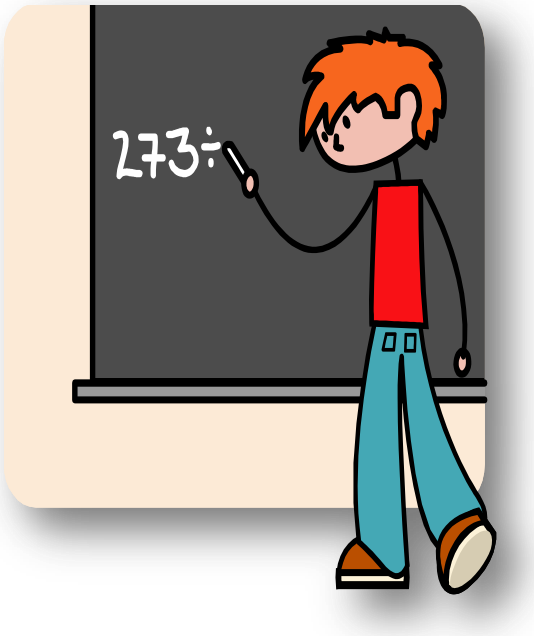



## Objectives:

- **Solve a formula for a specified variable.**
- **Solve applied problems by using formulas.**
- **Solve percent problems.**
- **Solve problems involving percent increase or decrease.**

- Mathematical model -

- Formula-

# Example 1

- Solve the formula for the specified variable.

a) $d = rt$ for $r$

b) $P = 2L + 2W$ for $L$

# Example 2

- Solve the formula for the specified variable.

a) $y = \frac{1}{2}(x + 3)$ for $x$

b) $2x + 7y = 5$ for $y$

# Example 3

- It takes James Harmon one third of an hour to travel 15 miles.  What is his average rate?

# Solving a Percent Problem

Let $a$ represent a partial amount of $b$, the base, or whole amount. Then the following equation can be used to solve a percent problem.

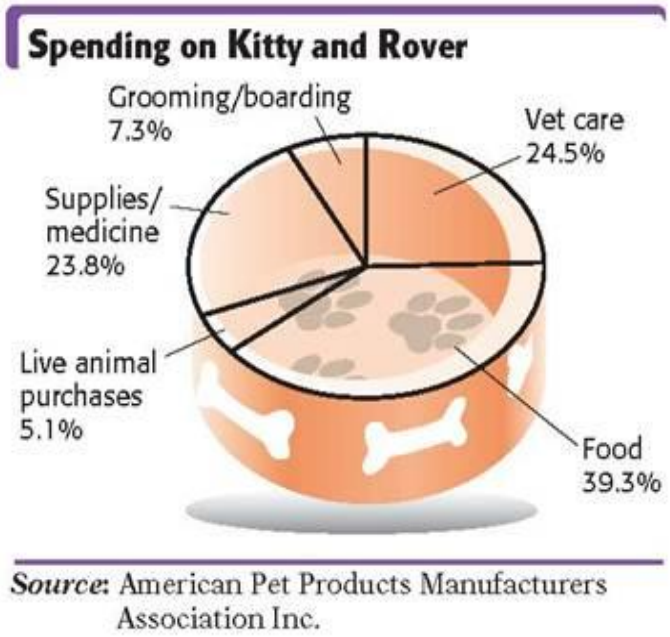
# Example 4

- A mixture of gasoline and oil contains 20 oz, of which 1 oz is oil. What percent of the mixture is oil?

- An automobile salesman earns an 8% commission on every car he sells. How much does he earn on a car that sells for $12,000?

# Example 5

- In 2007, Americans spent about $41.2 billion on their pets. Use the graph to determine how much was spent on pet supplies/medicine. *Round your answer to the nearest tenth of a billion dollars.*



# Example 6

Percent is often used to express a change of some quantity. To solve problems of this type, we use the following form of the percent equation:

- A cost-of-living salary increase resulted in Keith's monthly salary to go from $1,300 to $1,352. What percent increase was this?

# Example 7

- The price of a concert ticket was changed from $54.00 to $51.30.  What percent decrease was this?