Chapter 7
Proportional Reasoning
Section 7.3
Solving Percent Problems

Introduction
Think about this...David had a test score of 85 on a test worth 100 points.
› What fraction would represent his score?
› Decimal?
› Percentage?

Percent
› A percent is a ________ with a denominator of 100.
› Percent literally means “________ ____________ •
› Percentages are a common base of comparison because they can compare sets of different sizes.
› Common percentages:
   1% 10% 25% 50%
   100% 33 1/3 % 66 2/3 %

Converting Fractions, Decimals, and Percents
› Percent to Decimal – move decimal two places ________
› Decimal to Percent – move decimal ________ places right
› Percent to Fraction – write over ________ and reduce
› Fraction to Percent – ________to make a decimal and move two places right

Finding the Percent of a Number
› Examples
1) 50% of 28
2) 25% of 4000
3) A $25 shirt is selling at a 10% discount. Find the amount of discount and sale price.

Finding the Percent of a Number
› Examples
4) A car manufacturer claimed that less than 0.1% of seat belts fail in frontal accidents. If there were 100,000 frontal accidents, what would be the maximum number of seat belts that could be expected to fail?
5) Estimate 2% of 527
**Percent Proportion**

\[ \frac{\%}{100} = \frac{\text{part}}{\text{ Whole}} \]

Note: Some math books refer to the "whole" as the "base".

**Finding a Number when a Percent of it is Known**

- **Examples**
  1) The discount on a dress advertised as “1/3 off” is $55. What was the original price?

**Finding a Number when a Percent of it is Known**

- **Examples**
  2) George gave a $15 tip that amounted to 18% of his total restaurant bill. How much was the bill?

**Find the Percent that one Number is of Another**

- **Examples:**
  1) In a survey of 1500 people who owned the same make of car, 900 indicated that they would buy the same make of car again. What percent of these people were satisfied with their car?

**Find the Percent that one Number is of Another**

- **Examples:**
  2) Kathy and Tommy are buying a house that is listed for $127,500 and are paying $25,500 down. Find the percent of the down payment.

**Finding the Percent of Increase or Decrease**

- Determine the *amount* of increase or decrease by ________.
- Divide this amount by the ________ amount
- Convert this fraction or decimal to a ________.

\[ \frac{\text{new} - \text{old}}{\text{old}} \]
Examples

1) Attendance for a major league baseball team averaged 29,500 for games in 1994 and 22,000 in 1995. What was the percent decrease in attendance from 1994 to 1995 (to the nearest tenth of a percent)?

Examples

2) The number of students at a university increased from 6000 students in 1960 to 18,000 in 1968. What was the percent increase in enrollment during this period?