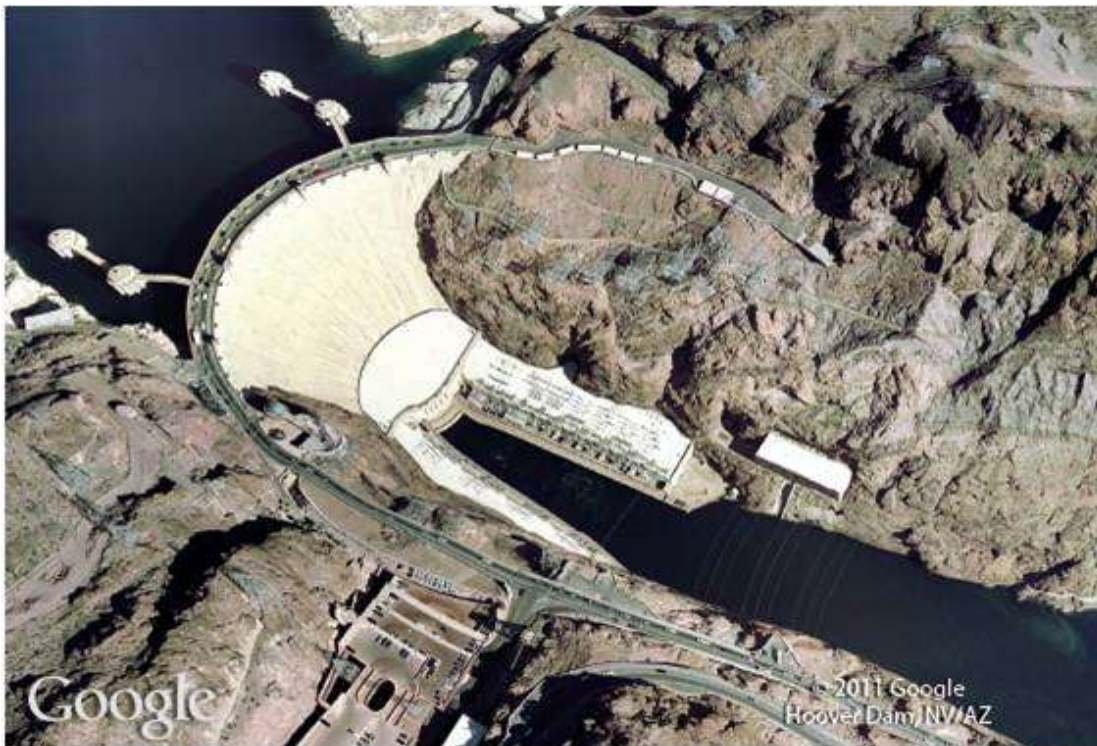


# Percent

7



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## SECTION 7.5

# Percent Increase or Decrease, and Discount

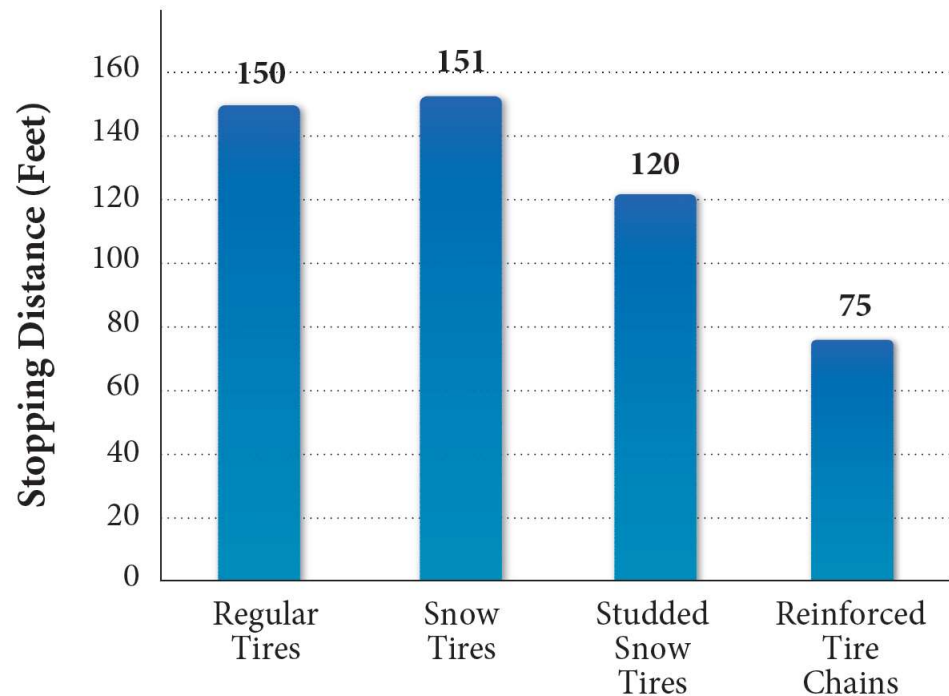
# Objectives

- A** Find the percent increase.
- B** Find the percent decrease.
- C** Solve application problems involving the rate of discount.

# Percent Increase or Decrease and Discount

The following table and bar chart show some statistics for cars with different tires traveling 20 miles per hour on ice.

	Stopping Distance	Percent Decrease
Regular tires	150 ft	0
Snow tires	151 ft	-1%
Studded snow tires	120 ft	20%
Reinforced tire chain	75 ft	50%



# Percent Increase or Decrease and Discount

The percent decrease column on the table shows how stopping distances of a car with special tires relate to the stopping distance of a car with regular tires.

Many times it is more effective to state increases or decreases as percents, rather than the actual number, because with percent we are comparing everything to 100.



**A** Percent Increase

# Example 1

If a person earns \$22,000 a year and gets a 5% increase in salary, what is the new salary?

**Solution:**

We can find the dollar amount of the salary increase by finding 5% of \$22,000.

$$0.05 \times 22,000 = 1,100$$

The increase in salary is \$1,100.

# Example 1 – *Solution*

cont'd

The new salary is the old salary plus the raise:

\$22,000	Old salary
+ 1,100	Raise (5% of \$22,000)
<hr/>	
\$23,100	New salary





**B** Percent Decrease

## Example 2

In 1997, there were approximately 1,477,000 arrests for driving under the influence of alcohol or drugs (DUI) in the United States.

By 2007, the number of arrests for DUI had decreased 3.4% from the 1997 number.

How many people were arrested for DUI in 2007? Round the answer to the nearest thousand.

## Example 2 – *Solution*

The decrease in the number of arrests is 3.4% of 1,477,000, or

$$0.034 \times 1,477,000 = 50,218$$

Subtracting this number from 1,477,000, we have the number of DUI arrests in 2007.

1,477,000	Number of arrests in 1997
– 50,218	Decrease of 3.4%
<hr/>	
1,426,782	Number of arrests in 2007

To the nearest thousand, there were approximately 1,427,000 arrests for DUI in 2007.



**c** Discount Rate

# Example 4

During a clearance sale, a suit that usually sells for \$300 is marked “25% off.” What is the discount? What is the sale price?

**Solution:**

To find the discount, we restate the problem as

*What is 25% of 300?*

$$\begin{array}{c} \downarrow \downarrow \downarrow \downarrow \downarrow \\ n = 0.25 \cdot 300 \end{array}$$

$$n = 75$$

The discount is \$75.

# Example 4 – *Solution*

cont'd

The sale price is the original price less the discount:

\$300	Original price
– 75	Less the discount (25% of \$300)
<hr/>	
\$225	Sale price