**Chapter 2 Practice**

1. **Miles per Gallon**

A car holds 15 gallons of gasoline and can travel 375 miles before refueling. Write a program that calculates the number of miles per gallon the car gets. Display the result on the screen.

*Hint:* Use the following formula to calculate miles per gallon (MPG):

MPG 5 Miles Driven/Gallons of Gas Used

1. **Distance per Tank of Gas**

A car with a 20-gallon gas tank averages 23.5 miles per gallon when driven in town, and 28.9 miles per gallon when driven on the highway. Write a program that calculates and displays the distance the car can travel on one tank of gas when driven in town and when driven on the highway.

*Hint:* The following formula can be used to calculate the distance:

Distance 5 Number of Gallons 3 Average Miles per Gallon

1. **Land Calculation**

One acre of land is equivalent to 43,560 square feet. Write a program that calculates the number of acres in a tract of land with 391,876 square feet.

1. **Circuit Board Price**

An electronics company sells circuit boards at a 35 percent profit. Write a program that will calculate the selling price of a circuit board that costs $14.95. Display the result on the screen.

1. **Personal Information**

Write a program that displays the following pieces of information, each on a separate line:

* + Your name
  + Your address, with city, state, and ZIP code
  + Your telephone number
  + Your college major

Use only a single cout statement to display all of this information.

1. **Triangle Pattern**

Write a program that displays the following pattern on the screen:

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1. **Diamond Pattern**

Write a program that displays the following pattern:

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1. **Stock Commission**

Kathryn bought 750 shares of stock at a price of $35.00 per share. She must pay her stockbroker a 2 percent commission for the transaction. Write a program that calculates and displays the following:

* + The amount paid for the stock alone (without the commission).
  + The amount of the commission.
  + The total amount paid (for the stock plus the commission).

1. **Energy Drink Consumption**

A soft drink company recently surveyed 16,500 of its customers and found that approximately 15 percent of those surveyed purchase one or more energy drinks per week. Of those customers who purchase energy drinks, approximately 58 percent of them prefer citrus-flavored energy drinks. Write a program that displays the following:

* + The approximate number of customers in the survey who purchase one or more energy drinks per week.
  + The approximate number of customers in the survey who prefer citrus-flavored energy drinks.

1. **Annual High Temperatures**

The average July high temperature is 85 degrees Fahrenheit in New York City, 88 degrees Fahrenheit in Denver, and 106 degrees Fahrenheit in Phoenix. Write a program that calculates and reports what the new average July high temperature would be for each of these cities if temperatures rise by 2 percent.

1. **How Much Paint**

A particular brand of paint covers 340 square feet per gallon. Write a program to determine and report approximately how many gallons of paint will be needed to paint two coats on a wooden fence that is 6 feet high and 100 feet long.