

# Real-World Problem Solving

For use with pages 119–124

## Buying a Car

When you negotiate with an automobile dealer to buy a car, the purchase price you agree to is not all that you have to pay to drive that car off the lot. There are extra costs such as sales tax, title fee, registration fee, license plate fee, and other miscellaneous charges that are added to the purchase price.

**In Exercises 1–6, use the following information.**

You take a job doing paperwork for a car dealer. One of your duties is to find a customer's total cost for an automobile when it is offered for a specified purchase price. To do this you need to find the extra costs to the customer. The extra costs are the sales tax (6 percent of the price of the car), the title fee (\$22.50), the registration fee (\$36.00), the license fee (\$12.00), and other miscellaneous fees (\$17.50). You decide to write a formula for the extra costs.

1. Find the total amount of the title fee, registration fee, license fee, and miscellaneous fees for a car.
2. Write an expression for the sales tax of a car. Use 0.06 as the tax rate and let  $p$  represent the purchase price of the car.
3. Write a verbal model that relates the extra costs to the sales tax and the total amount of the fees.
4. Write a formula based on the verbal model. Let  $C$  represent the extra costs.
5. Use the formula to find a customer's extra costs for a car with a purchase price of \$15,780.
6. You have misplaced some paperwork on a price offer made to a customer. You find a document showing that the extra costs for the purchase price would be \$1243. Find the purchase price offered to the customer.