

Study Guide and Intervention

7MR3.1, 7NS1.3

Problem-Solving Investigation: Reasonable Answers

In the four-step problem-solving plan, remember that the last step is to check for reasonable answers.

Explore	• Determine what information is given in the problem and what you need to find.
Plan	• Select a strategy including a possible estimate.
Solve	• Solve the problem by carrying out your plan.
Check	• Examine your answer to see if it seems reasonable.

Example

The cost of a guitar is \$300. Margaret works at the music store and can buy the guitar for 65% of the price. Will she have to pay more or less than \$200?

Explore You know the cost of the guitar. Margaret can buy the guitar for 65% of the price. You want to know if the guitar will cost more or less than \$200.

Plan Find a close estimate. 65% is close to 66.66% or $\frac{2}{3}$. Multiply the cost by the estimate.

$$\$300 \times \frac{2}{3} = \$200$$

Solve Think. $\$300 \times \frac{2}{3} = \200 . 65% is less than 66.66%, so she will have to pay less than \$200.

Check Find 65% of \$300. $\$300.00 \times .65 = \195 .
 $\$195 < \200.00 The answer is reasonable.

Exercises

For Exercises 1–5, determine a reasonable answer.

- JOBS** Maxine is paid \$9.25 an hour to work at the bookstore. If she is saving to buy a new video game system that costs \$360, will she have to work 30, 40, or 50 hours?
- MONEY** Jeff brings \$120 to purchase winter clothes. He buys a coat for \$57.36. He wants to purchase a pair of jeans for \$28.95 and a pair of boots for \$54.98. Does he have enough money with him to make these two purchases?
- SURVEY** In a recent survey, 56% of students at Trenton Middle School work at part-time jobs during the school year. If there are 1,378 students in the school, is 550, 650, or 750 a reasonable estimate for the number of students who work part time during the school year?
- SHOPPING** Byron took \$80 to the mall to buy gifts. He spent \$28.73 on a video game. He wants to purchase a book for \$13.89 and a laptop bag for \$39.99. Does he have enough money with him to make these two purchases?
- ATTENDANCE** There are 1,200 students at Hillsboro Middle School. If 43% of the students attend an exhibit given by the art department, would the number of students who attended be 924, 516, or 430?