

Name _____

1 Extra and Missing Information

You have already used the four-step problem-solving plan to solve problems. Recall that, in Lesson 1-1, you can use the Understand step to determine if there is missing or extra information given in the problem.

Information that is given in the problem that is actually needed to solve the problem is **relevant information**. Information that is needed to solve the problem but is not given in the problem is **missing information**. Information that is given in the problem but that is not needed to solve the problem is **extraneous information**. Extraneous information can be called *extra information*.



Real-World EXAMPLES

Identify Relevant, Missing, or Extra Information

Solve each problem, if possible. If there is relevant or extra information, identify it. If there is not enough information, state what information is needed.

- 1 MUFFINS** Bethany baked 4 batches of muffins for her math class. If each batch has 12 muffins, how many muffins will each student receive?

The following is relevant information.

- You know how many batches of muffins Bethany baked.
- You know that each batch has 12 muffins.

You need to find how many muffins each student will receive. To do this, you need to know how many students are in her math class. Since this information is missing, it is not possible to solve the problem.

- 2 COMPUTERS** Antonio wants to buy the laptop shown at the right. In January, he earned \$400 at his after-school job. He saved \$20 of this amount toward the purchase of the laptop. For each month after January, he will double the amount he saved the previous month. In which month will he have saved enough to buy the laptop?



All of the following statements are relevant information.

- You know the cost of the laptop, \$600.
- You know that he saved \$20 in January.
- You know that he will double the amount he saved the previous month.

The following is extra information because it is not needed to solve the problem.

- You know that Antonio earned \$400 at his after-school job.

You need to find which month Antonio will have saved enough to buy the laptop.

You can make a table to solve the problem.

| Month | January | February | March | April | May |
|-------------------|---------|----------|-------|-------|-----|
| Amount Saved (\$) | 20 | 40 | 80 | 160 | 320 |

Next, add the amount of money he saved each month.

$$\$20 + \$40 + \$80 + \$160 + \$320 = \$620$$

Since the total amount Antonio saved, \$620, is greater than the cost of the laptop, \$600, he will have enough money to buy the laptop in May.

Look back. Check to see if the amount doubled each month. Since $20 \times 2 = 40$, $40 \times 2 = 80$, $80 \times 2 = 160$, and $160 \times 2 = 320$, the answer is reasonable.

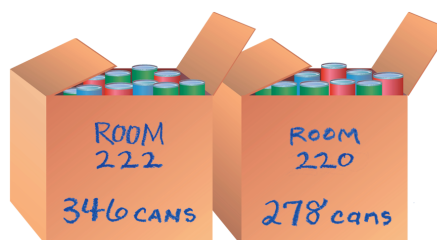
Exercises

Solve each problem, if possible. If there is relevant or extra information, identify it. If there is not enough information, state what information is needed.

- MUSIC** Jayden is downloading songs onto his digital music player. The first song is 5 minutes long, the second song is 3 minutes long, and the third song is between the lengths of the first and second songs. What is the total length of all three songs?

| Song | Length (min) |
|------|--------------|
| 1 | 5 |
| 2 | 3 |
| 3 | ■ |

- FOOD DRIVES** Room 220 and Room 222 are having a canned food drive. Refer to the diagram. How many more cans has Room 222 collected than Room 220?



- BOWLING** Karly is collecting money for a bowl-a-thon. Her goal is to collect \$125. So far, she has collected \$20 each from three people and \$10 each from four people. How much more money does Karly need to collect to have \$125?

| Number of People | Money Collected (\$) |
|------------------|----------------------|
| 3 | 20 each |
| 4 | 10 each |

4. **MEASUREMENT** Eli made pancake batter. He has $1\frac{2}{3}$ cup of batter left. How much of the batter did he use?
5. **FARMS** Mrs. Rollins owns a farm. She raises prize chickens. Each chicken has its own cage and eats the same amount of food. Mrs. Rollins bought 100 pounds of chicken food last week. How much food did each chicken eat?
6. **SPELLING** Paco studied his spelling words for 4 days. How many words did he study each day if he studied the same amount of words each day?
7. **PEACHES** What is the cost of the peaches for a peach pie?



8. **MEASUREMENT** Rocco is slicing a loaf of Italian bread to serve with dinner. The cost of the bread was \$2.99. He plans to cut the loaf into slices that are 1 inch thick. If the loaf is 18 inches long, how many pieces of bread can be cut from the loaf of bread?

9. **MEASUREMENT** The table shows the number of miles the Wong family drove each day on their vacation. How many more miles did they drive on Day 1 than on Day 4?

| Day | Miles |
|-------|-------|
| Day 1 | 345 |
| Day 2 | 50 |
| Day 3 | 89 |
| Day 4 | 279 |

10. **GEOMETRY** What are the next two figures in the pattern?



11. **ALGEBRA** What are the next two numbers in the pattern below?

9, 27, ■, ■

12. **ANALYZE TABLES** The sizes of Earth's oceans in millions of square kilometers are shown in the table. If the combined size of Earth's oceans is 367 million square kilometers, what is the size of the Pacific Ocean?

| Earth's Oceans | |
|----------------|---------------------------------|
| Ocean | Size (million km ²) |
| Arctic | ■ |
| Atlantic | 77 |
| Indian | 69 |
| Pacific | ■ |
| Southern | 20 |

Source: *The World Factbook*

13. **MONEY** Meli wants to buy a pair of rollerblades that cost \$140.75. So far, she has saved \$56.25. She makes \$9 an hour at her after-school job. If she saves \$6.50 every week, in how many weeks will she be able to purchase the rollerblades?
14. **WRITING IN MATH** Write a problem that has missing information. Explain how to rewrite the problem so that it can be solved.