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## Problems Based on Missing Information

The text, the graphics, and the question itself may have much more information than you need to solve a problem. When you make a plan, you choose carefully from all the information presented and use only the information you need.

But sometimes the information you need is not available. It's not in the text, the graphic, or a previous problem. It's not a piece of hidden information. A problem like this does not have enough information to solve it. When there is not enough information to solve a problem, you need to recognize what is missing. To answer this kind of question, state that the problem cannot be solved and identify what kind of information is needed.

**Try this problem. Think about what kind of needed information is not there.**

- 9** A tub of popcorn at the theater costs \$8. Mrs. Standish buys several large tubs for the group to share. How much does she spend for popcorn for the group?

**A** What do you want to find out?

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**B** What do you know?

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**C** What operation do you need?

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**D** What information do you need to find the answer?

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**E** Is this information located in the text? \_\_\_\_\_

Is it in the graphic? \_\_\_\_\_

Is it in a previous problem? \_\_\_\_\_

Is it hidden information? \_\_\_\_\_



**F** Can this problem be solved with the information you have? Explain why or why not.

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**Here's another problem to try on your own.**

**10** Andrea buys a drink at the snack bar. A large drink costs \$4. A small drink costs \$3. How much money does Andrea have left after buying her drink? Explain.

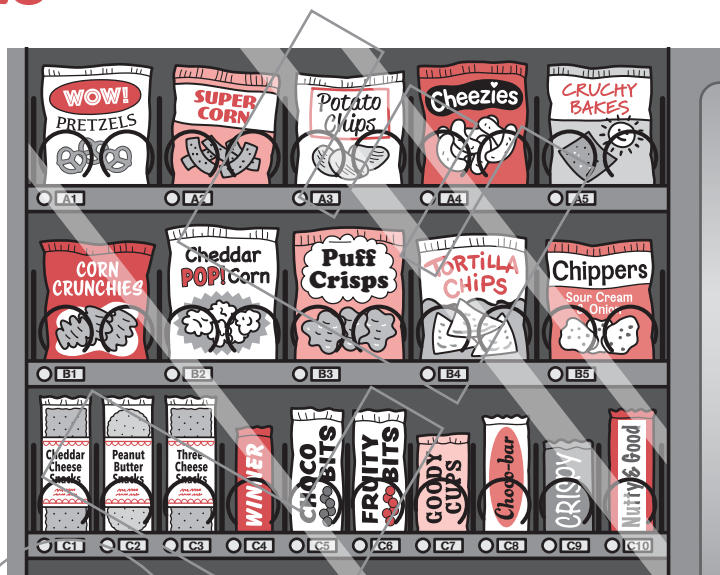
SAMPLE

# 11 Vending Machine

Mr. Vargas is stocking one of his vending machines in an office building. Each row of the machine has a number of coils that hold the snack packages. The coil turns and the snack drops when someone picks that item.

The upper rows hold bags of chips. The lower rows hold packs of crackers and candy.

Peanut-butter crackers are popular snacks. They come in boxes of 8 packs. Chips come in cases of 64 bags. Mr. Vargas fills the vending machine from these boxes and cases.



**Solve each problem. If there is not enough information to solve it, tell what information is needed.**

- 1 The case of chips contains equal numbers of bags of 8 different varieties. How many bags of each variety does the case hold?
- 2 One coil in a row can hold 9 bags of chips. How many bags of chips can one row of coils hold?

**How many coils are in a row that holds chips?**

- 3 Each pack of peanut-butter crackers has 6 crackers. How many crackers are in a box?

How many packs are in a box?

- 4 Jill works in the building from Monday through Friday. She eats a pack of peanut-butter crackers a day from this machine. How many crackers does she eat in a week?

- 5 Mr. Vargas opens a box of fruit-and-nut bars to stock the machine. The box contains 32 bars in layers. How many bars per layer are there?

- 6 Mr. Vargas added 49 candy bars to the candy coils in the row with the crackers. How many candy bars, on average, did he add per candy coil?

How many coils in that row hold candy?

- 7 An average of 7 people buy something from this vending machine every hour. If the office building is open 8 hours a day, about how many people buy something from the vending machine a day?

Imagine that each person buys just one thing.

8

- The full machine holds 360 items. Mr. Vargas stocks it on Sunday night so it is full on Monday morning. He refills it Wednesday evening. About how many items will be left in the machine when he comes to refill it? Round your answer to the nearest ten. Explain how you found your answer.

How many steps will this problem have?

SAMPLE