Solving Problems Using an Organized List

GOAL

Use an organized list to solve problems that involve number relationships.

Sage has a pile of metal cones to sew onto a jingle dress. The number of cones is a multiple of 4 between 20 and 50. She can arrange the cones in 3 equal rows with no cones left over.

? What possible number of cones does Sage have?

Mai's Solution

Understand

I need to figure out how many cones Sage has. It's less than 50 and more than 20, and it's a multiple of 4. And it's a multiple of 3 because the cones can be arranged in 3 equal rows with none left over.

Make a Plan

I'll use an organized list to solve the problem.
I'll list multiples of 4 between 20 and 50.

Carry Out the Plan

24   28   32   36   40   44   48

I'll circle the multiples of 3 on my list.

(24)   28   32   (36)   40   44   (48)
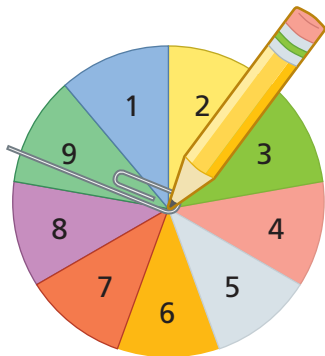
So Sage has either 24, 36, or 48 cones.

Look Back

Each number is between 20 and 50. I divided each number by 4 and by 3 to make sure the remainder was 0.

Reflecting

A. Why was making an organized list a good strategy for Mai to use?

Checking

1. Solve the following problem. Show your work.

Sage is sewing metal cones onto another jingle dress. The number of cones is between 50 and 100, and is a multiple of 7. The cones can be arranged in 4 equal rows with no cones left over. The number of cones can be arranged in 6 different arrays. How many cones does Sage have?

Practising

2. Nia has photos to display. The number of photos is between 20 and 50, and is prime. If you add one more photo, the number of photos is a multiple of 8. If you add two more photos, the number of photos is a multiple of 7. How many photos does Nia have?

3. What is the first multiple of 6 that has 7 as a factor? Show your work.

4. Barrett's hockey cards can be arranged in 3 equal rows or 5 equal rows. He has between 60 and 80 cards. How many cards are in his collection?

5. Two whole numbers have a sum of 100. Both numbers are multiples of 5. 10 is not a factor of either number. What two numbers are possible?

6. Natalie and Gwen spin the spinner twice to form a two-digit number. Natalie scores a point if the number is an even multiple of 7. Gwen scores a point if the number is an odd multiple of 9. Who has more ways to score a point? Explain your reasoning.

7. Make up a problem that can be solved by using an organized list. Each of these numbers is a possible solution: 42   45   48