

Solving Problems Using a Chart

GOAL

Solve problems using a chart to list combinations.

Julia found these three pails in the barn. She wants to take some water to the horses.



? What different amounts of water could Julia put in her wagon if she only carries full pails?



Rachel's Solution

Understand the Problem

She could use one pail, two pails, or all three pails. I need to figure out all the amounts of water that she could take.



Make a Plan

I'll use a chart to figure out all the combinations.

Carry Out the Plan

Ways to Carry Water				
	1 L	2 L	8 L	Total
Using 1 pail	✓			1 L
		✓		2 L
			✓	8 L
Using 2 pails	✓	✓		3 L
	✓		✓	9 L
		✓	✓	10 L
Using 3 pails	✓	✓	✓	11 L

Julia could take 1 L, 2 L, 3 L, 8 L, 9 L, 10 L, or 11 L of water to the horses.

Look Back

I found seven different amounts of water that Julia could carry in her wagon. I used only full pails and I used each pail only once for each amount.

Reflecting

- A. How can you tell that Rachel has found all the possible combinations?
- B. How is it helpful to use a chart to solve a problem like this one?

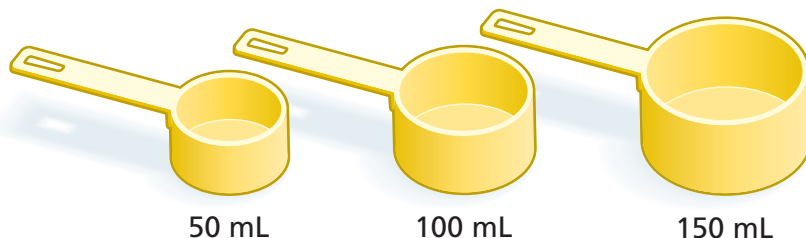


Checking

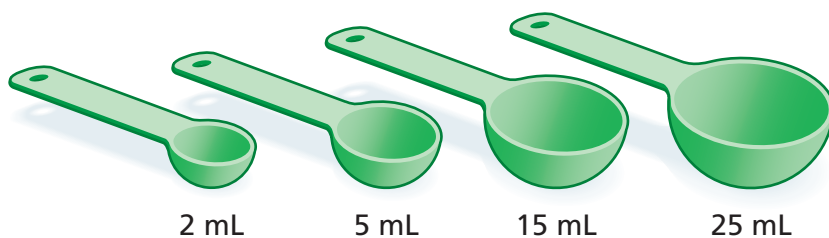
1. Suppose that Julia uses these pails. What different amounts of water could she put in her wagon if she only carries full pails?

Practising

2. Lee has these scoops for measuring. What possible amounts can he measure at one time if he uses one, two, or all three full scoops? Show your work.



3. What different amounts could someone measure at one time using one, two, three, or all four of the measuring spoons below? Show your work.

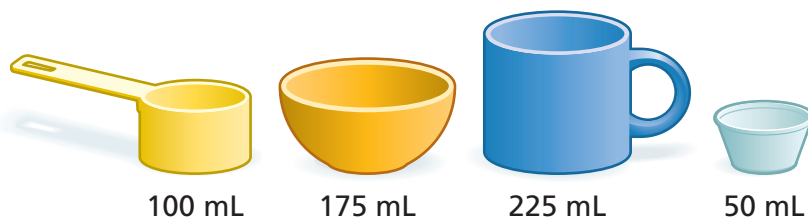


Reading Strategy

Predicting

- Re-read the problem.
- Make connections to what you already know.
- Make predictions about the solution.

4. Will and Cale are partners in a race. They will win if they are the first pair to fill a container with exactly 1000 mL of water. They must choose two of the measuring containers below. They can use these containers in any order. Which containers should Will and Cale choose? Why?



5. Andrea has three strips of paper that are 25 mm, 37 mm, and 51 mm long. What lengths could she show exactly with one or more of these strips of paper?
6. Create and solve a problem about combining three or four items to make different capacities or lengths.