

Using Different Units

- 1. A.** Nicholas needs to measure several quarts of lemonade for a recipe. He has only a 1-cup measure. Complete the function table to find the volume in cups when you know the volume in quarts.

Input	Output
Volume in Quarts	Volume in Cups
1	4
2	8
3	
4	16
5	
6	24

- B.** Write a rule to find the volume in cups when you know the volume in quarts.
- C.** Nicholas needs to measure 8 quarts of lemonade. How many cups is that? Show your thinking.
- D.** Nicholas now needs to measure 2.5 quarts of soda for the recipe. How many cups is that? Show your thinking.

2. A. Lee Yah needs 10 cups of grape juice for a punch recipe. Grape juice is sold in bottles labeled in fluid ounces. Complete the function table to find the volume in fluid ounces when you know the volume in cups.

B. Write a rule to find the volume in fluid ounces when you know the volume in cups.

Input	Output
Volume in Cups	Volume in Fluid Ounces
1	8
2	16
3	
4	
	40
8	64
10	

C. Grape juice comes in different sizes. Fill in the circle by the smallest bottle size Lee Yah should buy to make the punch recipe. Then show or tell how you know.

12 ounces
 32 ounces
 64 ounces
 96 ounces

3. A. Mrs. Dewey’s students are trying to write a rule to find the volume in cubic centimeters when they know the volume in milliliters. Complete the table.

B. Write a rule to find the volume in cubic centimeters when you know the volume in milliliters.

Input	Output
Volume in Milliliters	Volume in Cubic Centimeters
10	10
50	50
100	
	250
1000	1000
	2000

- 4. A.** Look at the function table below. The students in Mrs. Dewey’s class are trying to write the rule to find the distance in feet when they know the distance in inches. Complete the function table.

Input	Output
Distance in Inches	Distance in Feet
12	1
24	2
36	3
48	
60	
72	6



I think the rule is the distance in inches times 12.



I think the rule is the distance in inches minus 11.



I think the rule is the distance in inches divided by 12.

- B.** Do you agree with Shannon, Ming, or John? Explain.

- 5. A.** Look at the function table below. Jerome is trying to write the rule to find the distance in meters when he knows the distance in centimeters. Complete the table.

Input	Output
Distance in Centimeters	Distance in Meters
100	1
10	0.10
1000	10
1	
500	
5000	



centimeters \times 100 = meters

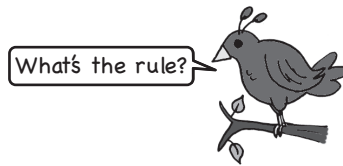
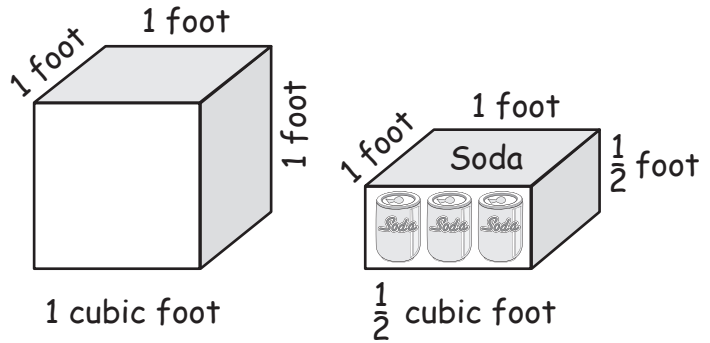
centimeters \div 100 = meters

centimeters \div 10 = meters

- B.** Which rule do you agree with? Explain.

- 6. A.** A cubic foot is the amount of space taken up by a cube that is one foot on each side. The volume of a 12-pack of soda is about half a cubic foot. Complete the function table.

Input	Output
<i>N</i> Number of 12-Packs of Soda	<i>V</i> Volume (cubic feet)
1	$\frac{1}{2}$
2	1
4	
5	
10	5
<i>N</i>	



- B.** What is the largest number of 12-packs of soda that will fit into a refrigerator that can hold 15 cubic feet? Show or tell how you know.



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- 7. A.** Maya and Jacob were getting ready to play Fill it First. This time they will record the total volume of the water and marbles for each turn. Each made a table and wrote a rule for what they thought would happen with their marbles. Complete each table using the rule.

Table A

<i>N</i> Number of Marbles	<i>T</i> Total Volume (cc)
0	50
1	
2	
5	
10	
<i>N</i>	$N \times 3 + 50$

Table B

<i>N</i> Number of Marbles	<i>T</i> Total Volume (cc)
0	50
1	
3	
5	
10	
<i>N</i>	$N \times 5 + 50$

- B.** Maya is using larger marbles than Jacob. Which table is Maya's? Show or tell how you know.
- C.** Look at each rule. Circle the part of the rule that shows the size of the marble.

$$T = N \times 3 + 50$$

$$T = N \times 5 + 50$$

- D.** What does the 50 mean in each rule?

- E.** Write Maya's rule in words.





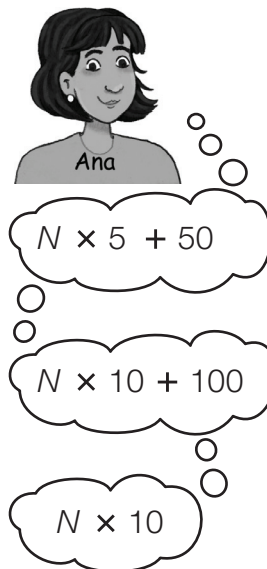
Check-In: Questions 8–10

- 8.** Ana is playing Fill it First, so she made a table to help her predict the total volume of water and marbles in the graduated cylinder.

A. Complete the table.

B. Which rule do you agree with? Explain.

N Number of Marbles	T Total Volume (cc)
0	100
1	110
2	120
3	
	140
N	



- 9.** Linda is preparing to play Fill it First. She writes a rule. Complete the table using the rule.

N Number of Marbles	T Total Volume (cc)
0	100
1	
2	
5	
10	
N	$N \times 6 + 100$

- 10.** Look at the function tables in Questions 8 and 9. Who is using the larger marbles, Linda or Ana? How do you know?