

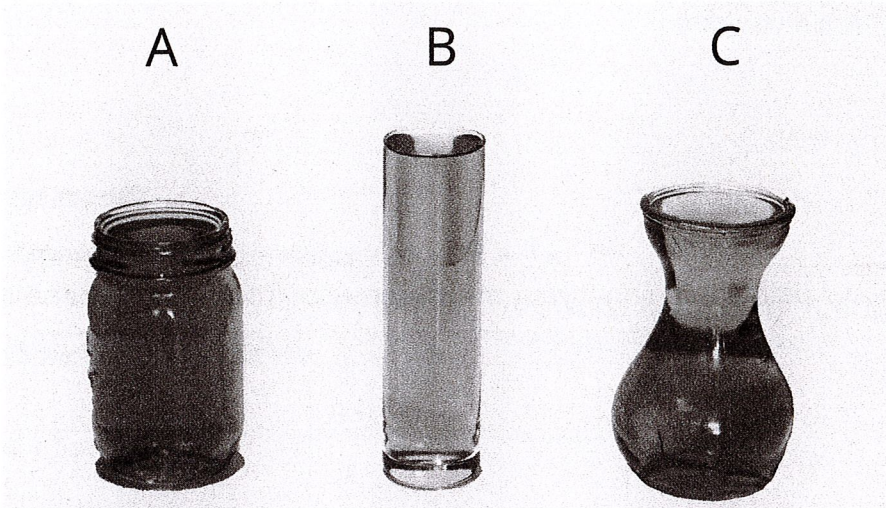
Unit 3

Lesson 7: Representations of Linear Relationships

Let's write equations from real situations.

7.1: Estimation: Which Holds More?

Which glass will hold the most water? The least?



7.2: Rising Water Levels

m.openup.org/1/8-3-7-2

1. Record data from your teacher's demonstration in the table. (You may not need all the rows.)

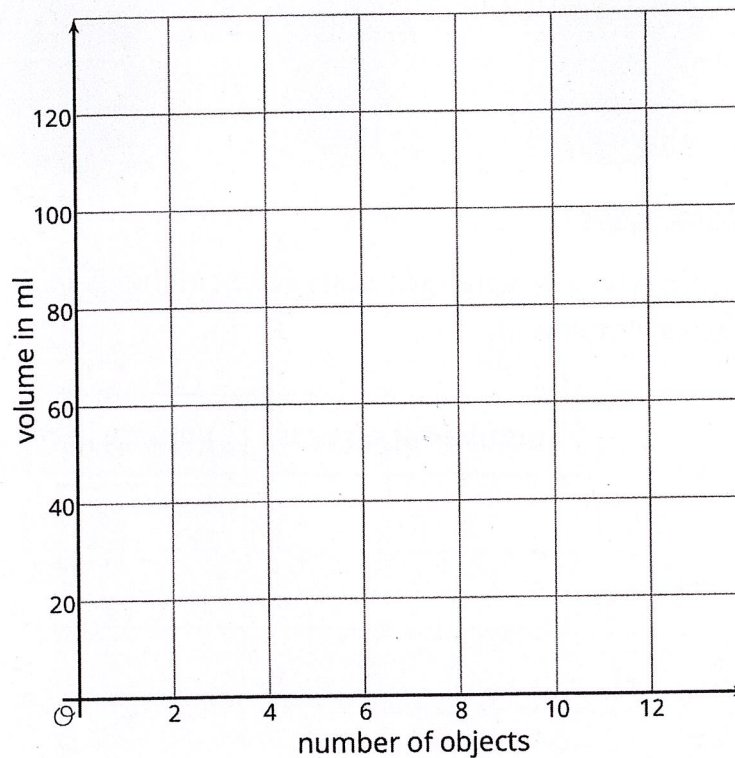


| number of objects | volume in ml |
|-------------------|--------------|
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| | |
| | |

2. What is the volume, V , in the cylinder after you add x objects? Explain your reasoning.

3. If you wanted to make the water reach the highest mark on the cylinder, how many objects would you need?

4. Plot and label points that show your measurements from the experiment.



5. The points should fall on a line. Use a ruler to graph this line.

6. Compute the slope of the line. What does the slope mean in this situation?

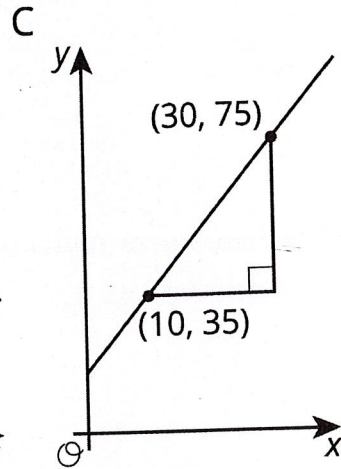
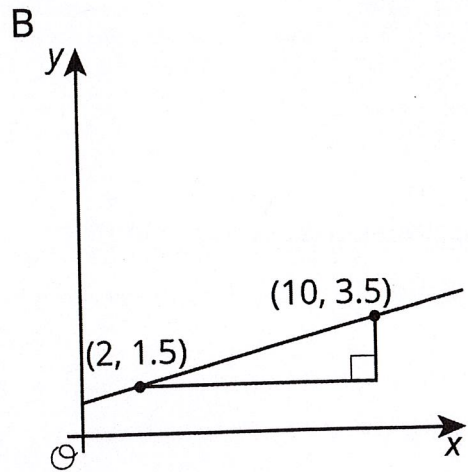
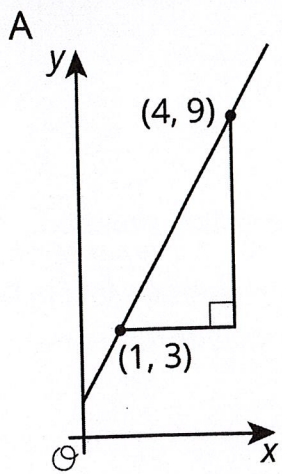
7. What is the vertical intercept? What does vertical intercept mean in this situation?

Are you ready for more?

A situation is represented by the equation $y = 5 + \frac{1}{2}x$.

1. Invent a story for this situation.
2. Graph the equation.
3. What do the $\frac{1}{2}$ and the 5 represent in your situation?
4. Where do you see the $\frac{1}{2}$ and 5 on the graph?

7.3: Calculate the Slope



1. For each graph, record:

| vertical change | horizontal change | slope |
|-----------------|-------------------|-------|
| | | |
| | | |
| | | |

2. Describe a procedure for finding the **slope** between any two points on a line.

3. Write an expression for the slope of the line in the graph using the letters u , v , s , and t .

