Unit 3, Lesson 14

Solving Percentage Problems

Let's solve more percentage problems.

14.1 Matching the Percentage

Match each question in the left column with a percentage in the right column. One percentage will be left over. Be prepared to explain your reasoning.

1. 5 is what percentage of 20?
2. 3 is what percentage of 30?
3. 6 is what percentage of 8?
4. 20 is what percentage of 5?

- 4%
- 10%
- 25%
- 75%
- 400%

14.2 Info Gap: Music Devices

Your teacher will give you either a problem card or a data card. Do not show or read your card to your partner.

If your teacher gives you the problem card:

1. Silently read your card and think about what information you need to answer the question.
2. Ask your partner for the specific information that you need. "Can you tell me _____?"
3. Explain to your partner how you are using the information to solve the problem. "I need to know _____ because . . . ."

   Continue to ask questions until you have enough information to solve the problem.
4. Once you have enough information, share the problem card with your partner, and solve the problem independently.
5. Read the data card, and discuss your reasoning.

If your teacher gives you the data card:

1. Silently read your card. Wait for your partner to ask for information.
2. Before telling your partner any information, ask, "Why do you need to know _____?"
3. Listen to your partner's reasoning and ask clarifying questions. Only give information that is on your card. Do not figure out anything for your partner!

   These steps may be repeated.
4. Once your partner says they have enough information to solve the problem, read the problem card, and solve the problem independently.
5. Share the data card, and discuss your reasoning.

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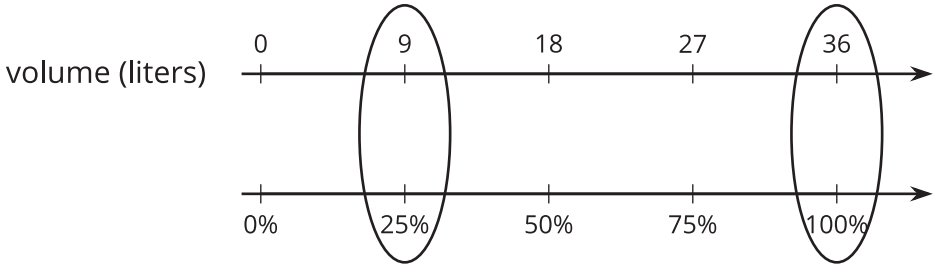
Lesson 14 Summary

In a situation that involves percentages, there are often three questions we are interested in answering.

Suppose a tank is filled with some water.

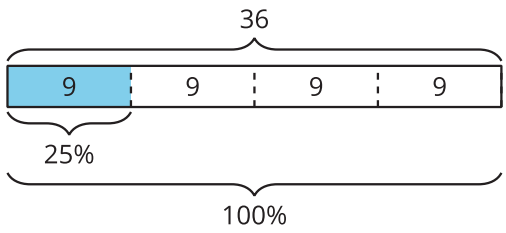
1. If we know that the tank is 25% filled and can hold 36 liters, we can ask: What is 25% of 36 liters?
2. If we know that the tank has 9 liters and is 25% filled, we can ask: How many liters are in a full tank?
3. If we know that the tank has 9 liters but can hold 36 liters when full, we can ask: What percentage of 36 liters is 9 liters?

We can use a double number line diagram, a table, or a tape diagram to help us reason about each question.



volume (liters)	percentage
36	100
9	25

$\cdot \frac{1}{4}$ $\cdot \frac{1}{4}$



We can also use our knowledge of fractions or relationships between numbers. For instance, we know that 9 is $\frac{1}{4}$ of 36, or $36 \div 4$, so it is $\frac{1}{4}$ of 100% or 25%.

In general, in a situation where A of B is C, we can find the value of A, B, or C if we know the other two values.

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