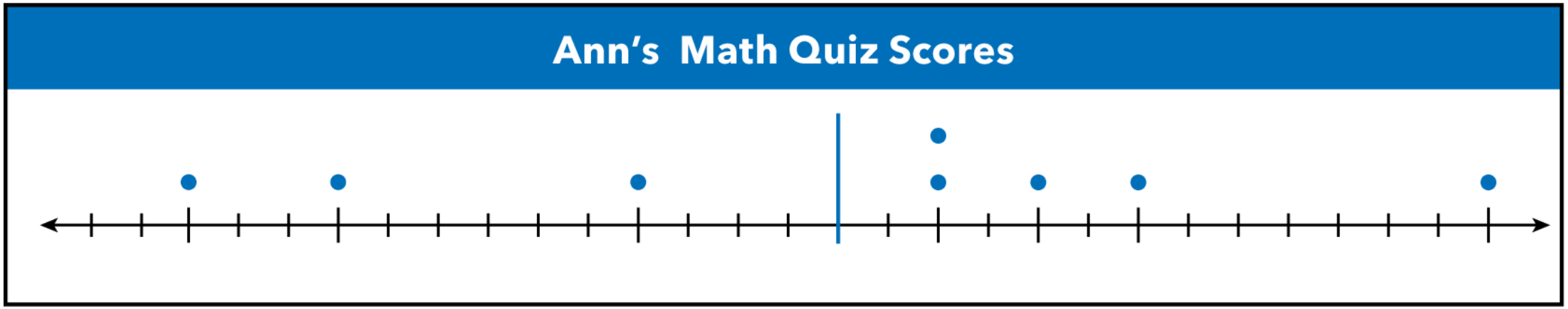
Slow Reveal Graph

What do you think this graph is about?



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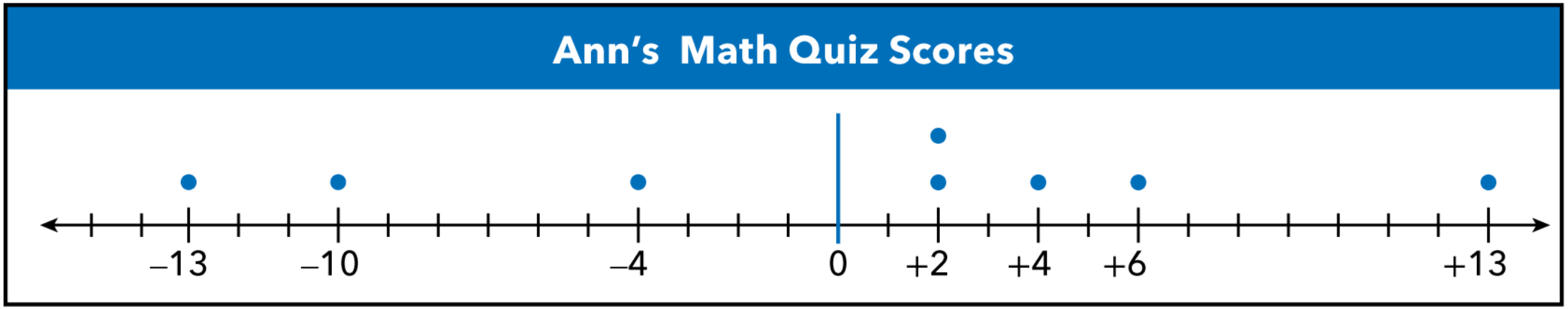

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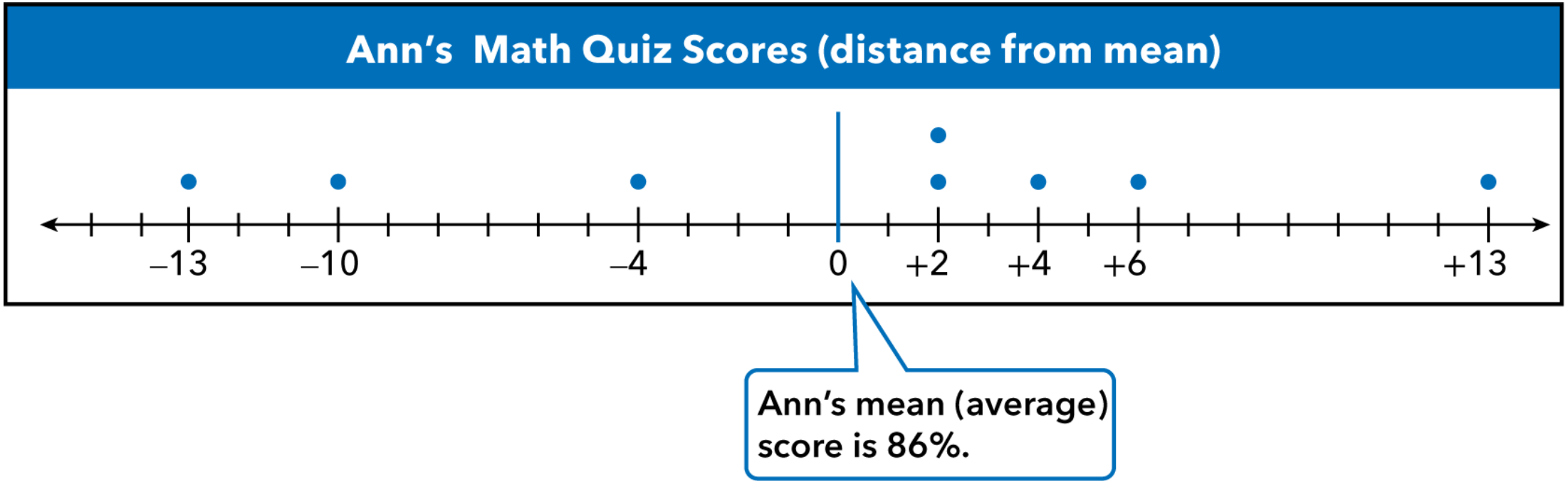


Slow Reveal Graph

What do you think this graph is about?

Teacher Notes.

This Math Talk prepares students to interpret variability in data using a graphical representation of how a student's test scores compare to the mean of the data. Use this Math Talk to introduce the comparative relationship that is used to calculate the mean absolute deviation of a data set. With the first slide, ask:

- What do you notice about the graph? What do you wonder?
- What do you know about Ann's math quiz scores?

With the second slide, students are likely to be surprised by the label 0 and the negative numbers. They may wonder how a quiz score could be negative. With the third slide, ask:

- How is the meaning of the minus sign in this graph different from other meanings you've seen?

Record students' observations as they discuss each slide. If time allows, ask students where they think a score of 100 belongs.

Equation Detective

Analyze this solution.

Look for any mistakes.

$$\frac{7}{4} \times 12$$

$$= \frac{7}{4} \times \frac{12}{1}$$

$$= \frac{7 \times 12}{4 \times 1}$$

$$= \frac{7 \times 3}{1}$$

$$= 21$$

Check: Since $\frac{7}{4}$ is greater than 1 but less than 2, the product must be greater than 12 but less than 24. 21 makes sense.

Equation Detective

Analyze this solution. Look for any mistakes.

Teacher Notes.

Explain that they should look critically at the work and analyze the solution. Anticipate that some students will think there must be an error, although there is not. Use this Math Talk to review multiplication of whole numbers by fractions greater than 1. As students analyze the work, ask:

- What steps did this student follow in the solution?
- Are the student's calculations correct? How do you know?
- Does the student's work in the Check make sense? Why or why not?
- Is there anything you would have done differently?

Which One Doesn't Belong?

Choose one. Tell how it is different.

A

A mouse has a mass of 21.5 grams.

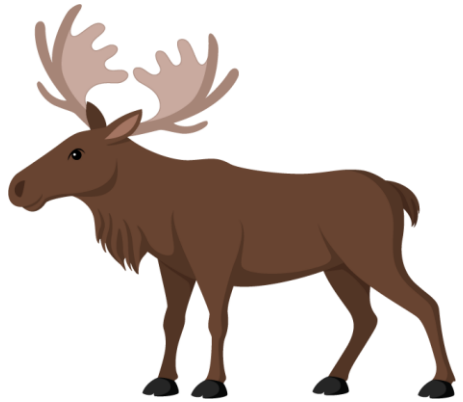
B

A python is 21.5 feet long.

C

A fish tank holds 21.5 gallons of water.

D



A moose is 2.15 meters tall.

Which One Doesn't Belong?

Choose one. Tell how it is different. Teacher Notes.

Comparing these sentences supports students' ability to distinguish between customary and metric units. Use this Math Talk to foster connections between unit types. As students discuss the representations, ask:

- Are the units from the customary system or from the metric system? How do you know?
- Which measurement system uses each unit?

Record students' observations as they classify the units of measure as metric or customary. Among other observations, students may notice that A uses a metric unit of mass, B uses a customary unit of length, C uses a customary unit of capacity, and the number part of D is a factor of 10 less than the number parts of A, B, and C. Anticipate that your students will offer a variety of rationales for why and how each of the sentences differs from the others.

Algebra Strings

Look for a pattern.

$$\frac{1}{4} = \square\%$$

$$\frac{2}{4} = \square\%$$

$$\frac{3}{4} = \square\%$$

$$\frac{4}{4} = \square\%$$

Algebra Strings

Look for a pattern.

$$\frac{1}{4} = 25\,\%$$

$$\frac{2}{4} = 50\,\%$$

$$\frac{3}{4} = 75\,\%$$

$$\frac{4}{4} = 100\,\%$$

$$\frac{5}{4} = \square\,\%$$

Look for a pattern. Teacher Notes.

Anticipate that students will recognize patterns in fractions representing percents. Use this Math Talk to support students' reasoning about representing fractions as percents. Although students are familiar with fractions that are greater than 1, such as 5/4 pr 3/2, they have not yet explored how those fractions are related to percents. It is also to be expected that some students may think of percents as finite and existing only between 1% and 100%. As students look for a pattern on the first slide, ask:

- What are some commonalities among the fractions? What are some differences?
- How might you determine the percent equivalent of a fraction?

After displaying the second slide, ask:

- What is different about this slide?
- What do you notice about the last line?
- How could you use the pattern you found to find a percent for the last line?

Strategize First Steps

Decide on a first step.

A shirt costs $18 after a 25% discount. What was the original price of the shirt?

Strategize First Steps

Decide on a first step. Teacher Notes.

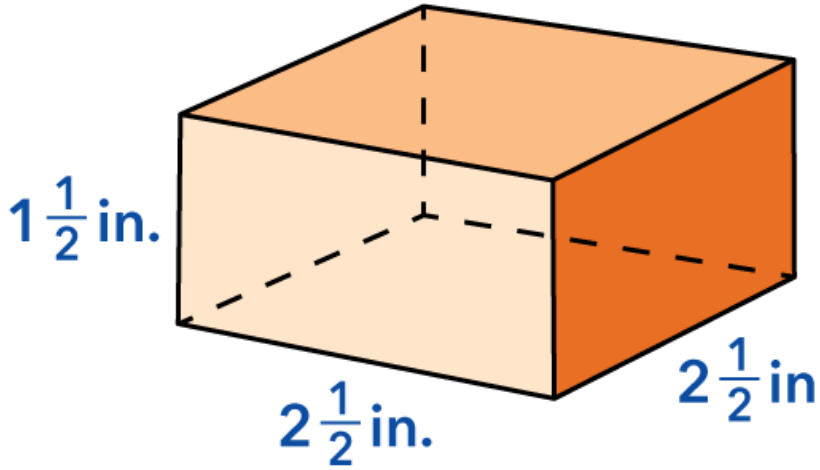
Students strategize about the first steps needed to solve for the whole amount when given a part and a percent. Use this Math Talk to help students think critically about percent relationships and solving equations. Anticipate that students will suggest several possible first steps, including:

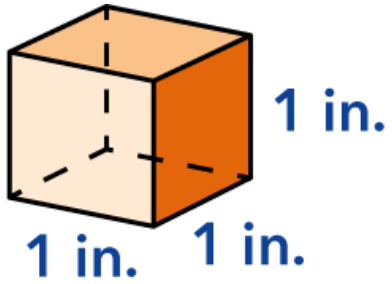
- I know that a discount of 25% means that $18 is 75% of the original price.
- 25% is one third of 75%, so I can find one third of $18 to find how much was taken off.
- I would set up a proportion like 75/100=18/x because 75% of the original price is $18.
- I would write an equation like and solve for because $18 is 75% of the original price.
- I would divide $18 by 75% because that tells me the whole amount.

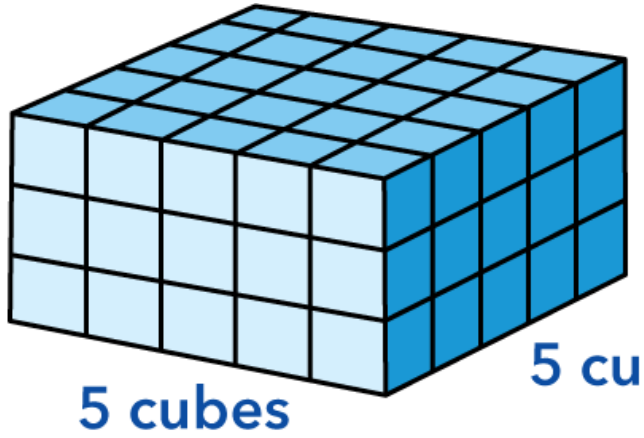
If your students want to solve the problem, encourage them to do so. Remind them to check their work by confirming that their original price, when discounted by 25%, results in $18.

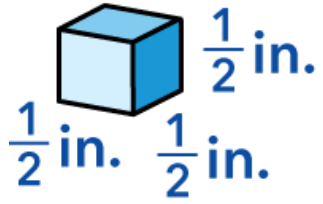
Same But Different

Compare the images.









Same But Different

Compare the images. Teacher Notes.

This Math Talk helps students connect the concepts of unit cubes, fractional edge length, and volume. Record students' observations as they discuss the images. Highlight any connections they make between the volumes of the prisms and between volume of a rectangular prism and volume of a unit cube. Ask:

- How are the prisms alike? How are they different?
- How are the cubes alike? How are they different?
- Why do you think there's a cube next to each prism?
- How are the dimensions of the prism on the left related to the dimensions of the prism on the right?

Among other observations, students may notice the following:

- How they differ: The prism on the left has edge lengths in inches, while the prism on the right has edge lengths in number of cubes.
- How they are alike: The edge lengths of the prism on the left are the same as the edge lengths of the prism on the right, because 5 half-inch cubes put next to each other is the same as 2 1/2inches.