Unit 2: Proportional Reasoning: Percent and Scale

Dear Parents/Guardians,

In Unit 2 students explore problems involving percent and scale. In Lesson 1 students will solve percent problems in many ways, including arithmetic and mental strategies, tape diagrams, double number lines, and equations. In Lesson 2 students will learn about simple interest and solve problems involving interest and loans (see videos for additional support). In Lesson 3 students learn about scale, scale factors, and scale drawings.

Percent Increase

Percent increases occur often as tips, taxes, and price mark-ups. Below are three possible strategies for solving problems involving percent increase.
Example: Jake's lunch bill was $30. What would his total amount be if he would like to leave a 25% tip?

Strategy 1

Step 1: Find the amount of the percent increase.

25% of $30 ⟶ 0.25($30) = $7.50

Step 2: Add the amount of the increase to the original quantity.

$30 + $7.50 = $37.50

Strategy 2

A tip of 25% means the total amount will be 125% of the lunch bill.

125% of 30 = 1.25(30) = $37.50

Strategy 3

To find the value of one section, divide 30 by 4.

$\frac{30}{4} = \$7.50$

$7.50	$7.50	$7.50	$7.50	$7.50
Original $30				Tip

The cost with tip is $30 + $7.50 = $37.50.

Percent Decrease

Percent decreases occur often as discount sales or mark-downs. Below are three possible strategies for solving problems involving percent decrease.
Example: A dress costs $30. How much would you pay if it is 25% off?

Strategy 1

Step 1: Find the amount of the percent decrease.

25% of $30 ⟶ 0.25($30) = $7.50

Step 2: Subtract the amount of the decrease from the original quantity.

$30 – $7.50 = $22.50

Strategy 2

A discount of 25% means the dress will cost 75% of the original price.

75% of 30 = 0.75(30) = $22.50

Strategy 3

To find the value of one section, divide 30 by 4.

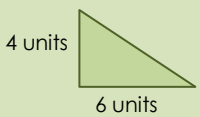
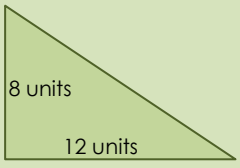
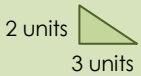
$\frac{30}{4} = \$7.50$

$7.50	$7.50	$7.50	$7.50	$7.50
75% of the original cost				25% discount

The cost of the dress is $30 - $7.50 = $22.50

Scale Drawings

Students will draw figures to scale of the original drawing. Scale drawings are replicas of the original, but may be larger or smaller. If the scale factor is greater than one, the figure will be larger than the original. If the scale factor is between 0 and 1, the figure will be smaller.

Original Drawing (scale factor of 1)	**Enlarged Drawing** (scale factor of 2)	**Reduced Drawing** (scale factor of 0.5)
		

Center For Mathematics And Teaching

Math Links GRADE 7

By the end of the unit, your student should know…

- How to find percent increases and decreases using different strategies [Lesson 2.1]
- How to solve real life problems involving percent [Lessons 2.1 and 2.2]
- Scale and scale factor in visual and symbolic representations [Lesson 2.3]
- How to make and interpret scale drawings [Lesson 2.3]

Additional Resources

- For definitions and additional notes please refer to Student Resources at the end of this unit.
- For more on simple interest: https://youtu.be/m_KU1TA1BHk