# Grade 7 Mathematics
Week of February 8 – February 12

Lesson 4.5: Problem Solving

Lesson Materials
- Lessons for Section 4.5 Problem Solving
- Learning Guide (This PDF)

Use the link above to open the lessons for this section. Remember: on the lesson page, use the arrow next to the "Table of Contents" at the **top of the page** to move through the lessons. You can also click on the Table of Contents to open the menu so you can jump to a specific lesson page.
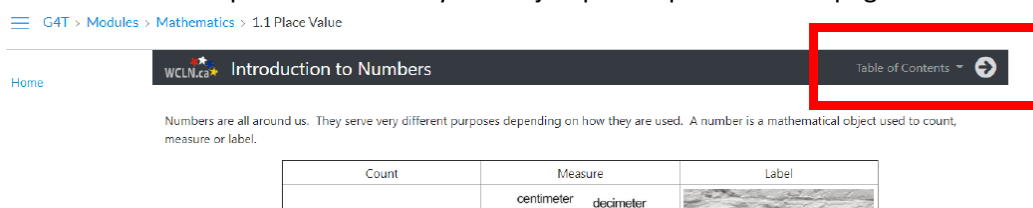
Work through the online lessons for this section. You can work at your own pace or follow the suggested schedule below. Complete the activities in your Learning Guide as you work through the lessons. You can print the Learning Guide, or, copy out the questions on a separate piece of paper. Be sure to try the games and practice quizzes as you make your way through the online lesson book.

Suggested Lesson Schedule

Monday	**Wednesday**
• Percentage Equations • Example • LG 4.5 p. 13, #1	• Percent of What Number? • Example • Practice
Tuesday	**Thursday**
• What Percent Is it? • Example • LG p. 13, #2	• LG p. 14-15, #3-5
	Friday
	• LG p. 15, #6-7

4.5 PROBLEM SOLVING

1. Solve for **x**. Round your answers to the nearest tenth. *Reminder: Isolate the variable. Do the same operation on both sides of the equation in order to keep it balanced.*

Ex. $\dfrac{60}{100} = \dfrac{x}{70}$ $(70)\dfrac{60}{100} = \dfrac{x}{70}(70)$ $\dfrac{70 \times 60}{100} = x$ $42 = x$

a. $\dfrac{45}{100} = \dfrac{x}{24}$

c. $\dfrac{31}{100} = \dfrac{x}{175}$

b. $\dfrac{14}{100} = \dfrac{x}{52}$

d. $\dfrac{75}{100} = \dfrac{x}{90}$

2. Fill in the table to find the percentage of each number using equivalent fractions.

	Question: What is …	Estimate the answer	Set up equivalent fractions	Multiply to isolate **x**	Answer
Ex.	40% of 55	**20**	$\dfrac{40}{100} = \dfrac{x}{55}$	$(55)\dfrac{40}{100} = \dfrac{x}{55}(55)$ $\dfrac{55 \times 40}{100} = x$	**22**
a.	40% of 85				
b.	30% of 20				
c.	25% of 400				
d.	3% of 19				

3. Fill in the table to find the percentage of each number using decimals. Round answers to the nearest tenth. _Reminder: The word "of" means multiplication._

	Question: What is …	Estimate the answer	Convert % to decimal	Multiply	Answer
Ex.	41% of 55	_20_	_41% = 0.41_	0.41×55	_22.6_
a.	51% of 39				
b.	77% of 560				
c.	5% of 90				
d.	12.5% of 41				

4. Find the percentage of each number using the method of your choice. Estimate the answer prior to doing the calculations.
   a. 50% of 180
   b. 25% of 30
   c. 18% of 96
   d. 95% of 11

5. Use the formula below to prepare each question for solving. Put an **x** in the place of the unknown value. You do **not** have to solve the question. _Hint: You can always place **100** under the first fraction before beginning._

$$\frac{\%}{100} = \frac{is\ (part)}{of\ (whole)}$$

Ex. What percentage of 30 is 19?

$$\frac{x}{100} = \frac{19}{30}$$

a. What percentage of 85 is 50?

b. What is 75% of 9?

c. Find 22% of 700.

d. What percentage of 92 is 87?   f. 6% of what number is 11?

e. 49% of what number is 180?   g. What is 8% of 205?

6. Solve. Answer with a sentence. Round your answers to the nearest tenth. _Reminder_:
    First, remove the numbers from the denominators, then Isolate the variable. Do the
    same operation on both sides of the equation in order to keep it balanced.

    Ex. 80% of what number is 66?

    $$(100x)\frac{80}{100} = \frac{66}{x}(100x) \qquad 80x = 66(100) \qquad x = \frac{6600}{80} \qquad x = 82.5$$

    _66 is 80% of 82.5_

    a. 80% of what number 30?

    b. 32% of what number is 102?

    c. 4% of what number is 3?

    d. 97% of what number is 645?

7. Solve. _Hint_: You can always place **100** under the first fraction before beginning.

$$\frac{\%}{100} = \frac{is\ (part)}{of\ (whole)}$$

a. What percentage of 300 is

c. What percentage of 300 is 87?

21?

d. 75% of what number is 210?

b. What is 65% of 5?