

Lesson 7: Operations with Fractions—(Continue)**OBJECTIVES: SWBA to**

Use the order of operations and knowledge of fractions (add, subtract, multiply and divide) to simplify numeric expressions. 6.NS.1

INTRODUCTION

In our meeting, we learned about using fraction models to divide fractions. Last year, around May-June, in the 5th grade we learned about addition, subtraction, and multiplication of fractions. Today, are going to apply our knowledge of fraction to solve word problems.

MINI-LESSON (I DO):

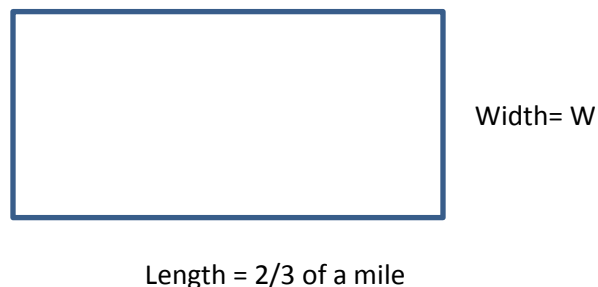
The length of a rectangular parking lot at the airport is $\frac{2}{3}$ mile. If the area is $\frac{1}{2}$ square mile, what is the width of the parking lot?

- A $\frac{1}{3}$ mile
- B $\frac{3}{4}$ mile
- C $1\frac{1}{6}$ miles
- D $1\frac{1}{3}$ miles

Solution:

Solve this problem I am going to draw a picture of the situation.

First I am told that the parking lot is rectangular, therefore I draw a rectangle.



Second, I am told that the area of the rectangular parking lot is $\frac{1}{2}$ square miles. The problem is asking for the width of the rectangular parking lot. I am calling the width of the parking lot w .

The area of a rectangle is given by:

$$\text{Area} = \text{length} \times \text{width}$$

I substitute the given values into the equation above. I know the area and the length of the rectangular parking lot.

$$\frac{1}{2} \text{ square miles} = \frac{2}{3} \text{ mile} \times w$$

I want to solve for w . One way to find the value of w is to multiply both sides of the equation by the reciprocal or multiplicative inverse of $\frac{2}{3}$, which is $\frac{3}{2}$.

$$\left(\frac{3}{2}\right) \times \left(\frac{1}{2}\right) = \left(\frac{2}{3}\right) \times \left(\frac{3}{2}\right) \times w$$

$$\frac{3 \times 1}{2 \div 2} = w$$

$$\frac{3}{4} = w$$

Multiplying number times its reciprocal is always 1.

Solution: The correct answer choice is B = $\frac{3}{4}$ mile

Guided Practice:

Problem 1:

What is the result when the shaded area is divided by $\frac{3}{4}$?



A $\frac{1}{2}$

B $\frac{6}{6}$

C $\frac{6}{9}$

D $\frac{8}{9}$

Solution:

The shaded area represent $\frac{2}{3}$ of the rectangle.

$$\frac{2}{3} \div \frac{3}{4} =$$

$$\frac{2}{3} \times \frac{4}{3} = \frac{8}{9}$$

The correct answer choice is D

Independent Practice (You Do):**Problem 2:**

It requires $\frac{1}{4}$ of a credit to play a video game for one minute.

- a. Emma has $\frac{7}{8}$ credits. Can she play for more or less than one minute? Explain how you know.
- b. How long can Emma play the video game with her $\frac{7}{8}$ credits?

Show your work.

Problem 3:

The distance between Rosa's house and her school is $\frac{3}{4}$ mile. She ran $\frac{1}{4}$ mile. What fraction of the way to school did she run?

Show your work.

Problem 4:

Alisa had $\frac{1}{2}$ liter of juice in a bottle. She drank $\frac{3}{8}$ liters of juice. What fraction of the juice in the bottle did Alisa drink?

Show your work.

Problem 5:

Alice, Raul, and Maria are baking cookies together. They need $\frac{3}{4}$ cup of flour and $\frac{1}{2}$ cup of butter to make a dozen cookies. They each brought the ingredients they had at home.

Alice brought 2 cups of flour and $\frac{1}{4}$ cup of butter, Raul brought 1 cup of flour and $\frac{1}{2}$ cup of butter, and Maria brought $1\frac{1}{4}$ cups of flour and $\frac{3}{4}$ cup of butter. If the students have plenty of the other ingredients they need (sugar, salt, baking soda, etc.), how many whole batches of a dozen cookies can they make?

Show your work.

Problem 6:

You are stuck in a big traffic jam on the freeway and you are wondering how long it will take to get to the next exit, which is $1\frac{1}{2}$ miles away. You are timing your progress and find that you can travel $\frac{2}{9}$ of a mile in one hour. If you continue to make progress at this rate, how long will it be until you reach the exit? Solve the problem with a diagram and explain your answer.

Show your work.

Final Summary

In a U-Shape:

1. Re-state the objective to assess if students learn it
2. Elicit from students what they have learned and what they want to learn more about.
3. Tie what they learn to the lesson, and upcoming lessons (More Ratios and Proportions)