

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## FINDING A FRACTION OF A WHOLE N-GEN MATH<sup>®</sup> 6



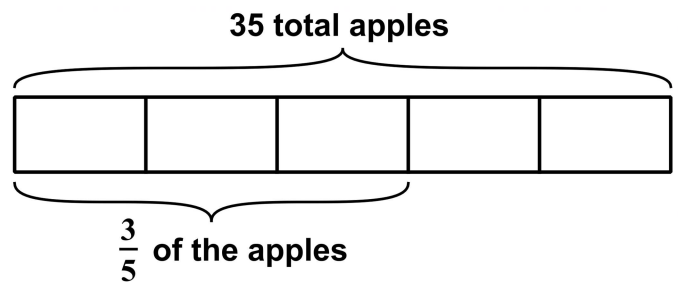
In the last lesson we reviewed how to multiply a fraction by a whole number. This often arises when we have **repeated addition of a fractional quantity**. Let's review in the first exercise.

**Exercise #1:** Victor takes strides that are  $3\frac{1}{4}$  feet long. If he takes 5 of these strides, what is the total distance he travels? Show your work and express your answer as a mixed number.

It is also important to understand how to multiply a whole number by a fraction because this situation comes up a lot when we are trying to find a **fraction of a whole quantity**.

**Exercise #2:** Latanya goes apple picking and picks 35 apples. She gives **three-fifths of the apples** away.

- (a) Write a product that would give three-fifths of the 35 apples. Don't evaluate it.

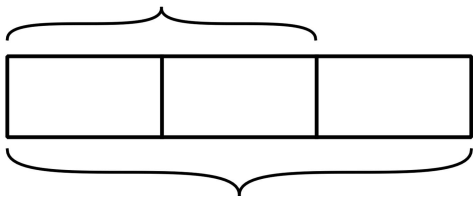


- (b) Fill in the tape diagram to help determine the value of the product in (a). What two operations do you have to do? Show them.

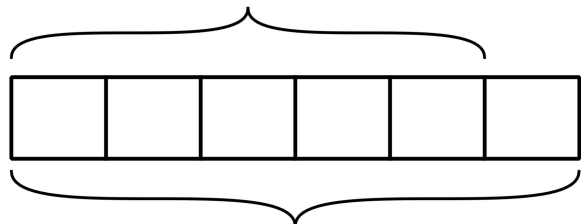
Tape diagrams can be extremely helpful in visualizing this type of product.

**Exercise #3:** For each of the following products, fill in the tape diagram that helps to visualize and evaluate the product.

(a)  $\frac{2}{3} \times 18 = \underline{\hspace{2cm}}$



(b)  $\frac{5}{6} \times 48 = \underline{\hspace{2cm}}$



**Exercise #4:** In Ivette’s class the number of left-handed students is two-ninths the number of right-handed students. If there are 18 right-handed students, how many total students are there?

These problems have been easy because the **whole** has been evenly **divisible**. It becomes more difficult if that isn’t the case. Consider the following exercise.

**Exercise #5:** Consider the products  $\frac{2}{5} \times 15$  and  $15 \times \frac{2}{5}$ . Find both products, showing your steps along the way.

$$\frac{2}{5} \times 15$$

$$15 \times \frac{2}{5}$$

What do you notice?

You’ve known for some time that multiplication of two numbers can be done in either order. This is the **commutative property of multiplication**. Because multiplication is **commutative**, when multiplying a whole number by a fraction you can switch the order if it makes it easier.

**Exercise #6:** Find each of the following products by doing the multiplication first. Reduce your answers to simplest terms and write as a mixed number if needed.

(a)  $\frac{7}{6} \times 9$

(b)  $\frac{3}{4} \times 10$

(c)  $\frac{6}{5} \times 4$

(d)  $\frac{3}{8} \times 12$

**Exercise #7:** Derek is cutting a board that is 10 feet long. He needs only three-eighths of the board’s length. Create a product that finds how long of a board Derek needs and then find the length in simplest form as a mixed number.



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**FINDING A FRACTION OF A WHOLE**  
**N-GEN MATH<sup>®</sup> 6 HOMEWORK**

**FLUENCY**

1. Find each of the following products by first using division and then multiplication. Each will be a whole number answer.

(a)  $\frac{4}{7} \times 21$

(b)  $\frac{5}{8} \times 40$

(c)  $\frac{11}{4} \times 8$

(d)  $\frac{2}{5} \times 60$

2. Find each of the following products by doing the multiplication first. Write your answers in simplified form and as a mixed number when necessary.

(a)  $\frac{5}{3} \times 2$

(b)  $\frac{2}{9} \times 12$

(c)  $\frac{8}{5} \times 4$

(d)  $\frac{7}{4} \times 10$

3. Which of the following is the result of the product:  $\frac{7}{100} \times 400$  ?

(1) 14

(3) 28

(2)  $18\frac{1}{4}$

(4)  $30\frac{1}{2}$

\_\_\_\_\_

4. The three-eighths of 14 is closest to which of the following whole numbers?

(1) 5

(3) 9

(2) 7

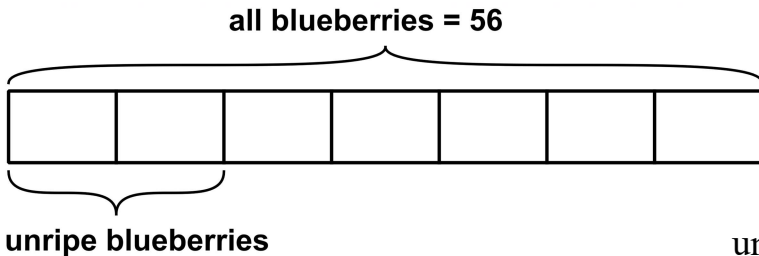
(4) 11

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## USING YOUR MATH

5. Of the 56 blueberries that Jono picked, two-sevenths of them weren't ripe. Fill in the tape diagram below and determine how many of the blueberries weren't ripe.



$$\text{unripe blueberries} = \frac{2}{7} \times 56 = \underline{\hspace{2cm}}$$

6. In Zari's entire sixth grade, seven-twelfths of the students are 11 years old. If there are a total of 60 students in sixth grade, how many of them are 11?

7. A grocery store has 22 pounds of flour at the beginning of the week. Over the span of the week they sell three-fifths of the flour.

- (a) What fraction of the flour did they have at the end of the week unsold?      (b) How many pounds of flour were left unsold? Express your answer in simplest form as a mixed number.

## REVIEWING YOUR MATH

8. A rectangle is shown below whose length is 4 feet and whose width is  $\frac{5}{8}$  of a foot. What is this rectangle's area in square feet? Express your answer as a mixed number in simplest form.

