Name: _____ Date: _____

FRACTIONS AND DIVISION
N-GEN MATH® 6

It is extremely important to understand the relationship between **fractions** and the **division** of two whole numbers. You've seen this already in the first lesson when converting between improper fractions and mixed numbers. In this lesson, we explore the relationship more.

***Exercise* #1:** What whole number is each of the following fractions equivalent to? Explain.

$\frac{2}{2}$ $\frac{3}{3}$ $\frac{4}{4}$ $\frac{5}{5}$

Since any fraction that has equal **numerators** and **denominators** is equal to one, we can start to see that fractions are equivalent to division.

***Exercise* #2:** Louise has candy bars that are broken into fourths. She has 12 of these fourths.

(a) Express the number of candy bars that Louise has as a fraction.

(b) How many candy bars does Louise have? How does this relate to division?

Every fraction has an equivalent division problem, including those with remainders.

***Exercise* #3:** For each of the following fractions, express it as a division problem and state the **quotient** as a whole number (there will be no remainders).

(a) $\frac{20}{5} =$ _____ ÷ _____ =

(b) $\frac{18}{3} =$ _____ ÷ _____ =

(c) $\frac{88}{8} =$ _____ ÷ _____ =

(d) $\frac{32}{4} =$ _____ ÷ _____ =

Fractions also represent division when remainders are involved.

***Exercise* #4:** Rosie is having two friends stay the night. They want to split 8 cookies between the 3 of them.

(a) Represent how much cookie each of the three friends will have as a fraction.

(b) Represent how much each will have as a mixed number using division.

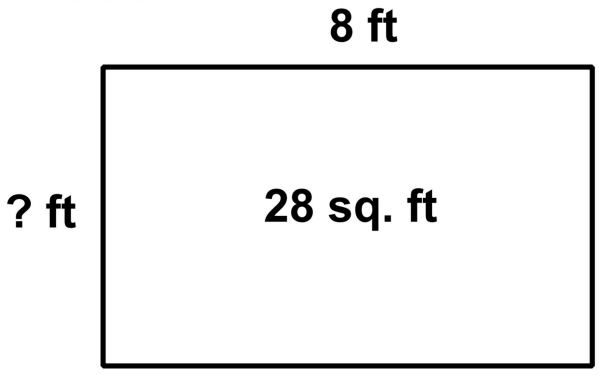
Since we can think about all fractions as simply the result of **dividing the numerator by the denominator** this allows us to convert between improper fractions and mixed numbers easily.

***Exercise* #5:** For each of the following improper fractions, rewrite the fraction as a division problem and then write the **quotient** as a mixed number.

(a) $\frac{32}{5}$ (b) $\frac{209}{12}$ (c) $\frac{121}{8}$

***Exercise* #6:** A rectangle has an area of 28 square feet and a length of 8 feet as shown in the picture. Its width is unknown.

(a) Write an expression for the width using both division and a fraction.



(b) Write the width as a mixed number in simplest form.

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FRACTIONS AS DIVISION
N-GEN MATH® 6 HOMEWORK

FLUENCY

1. Rewrite each of the following fractions as a division problem and then express the quotient as a whole number.

   (a) $\frac{49}{7}$ (b) $\frac{27}{3}$ (c) $\frac{60}{5}$ (d) $\frac{78}{6}$

2. Rewrite each of the following fractions as a division problem and then express the quotient as a mixed number in simplest form.

   (a) $\frac{38}{5}$ (b) $\frac{75}{7}$ (c) $\frac{175}{8}$

   (d) $\frac{63}{4}$ (e) $\frac{343}{10}$ (f) $\frac{199}{12}$

3. The fraction $\frac{115}{8}$ is closest to which of the following whole numbers?

   (1) 13 (3) 15

   (2) 14 (4) 16 _____

USING YOUR MATH

4. Six people go camping and bring 14 snack bars. If each camper gets the same amount of snack bars, then how much does each get? Express your answer as an improper fraction **and** as a mixed number.

5. On the same camping trip, the six campers bring four pounds of hamburger. Dave believes that each camper should get $1\frac{1}{2}$ pounds of hamburger each. His calculation is shown below.

> Dave's Calculation:
>
> $$6 \div 4 = \frac{6}{4} = \frac{3}{2} = 1\tfrac{1}{2}$$

Dave has made a mistake. Explain his mistake and determine the correct amount of hamburger each camper should get. Express your answer as a fraction in simplest form.

REVIEWING YOUR MATH

6. Find the least common multiple of each of the following pairs of numbers.

   (a) 6 and 8 (b) 3 and 9 (c) 8 and 10

7. For the following sums, write each as an equivalent product of its greatest common factor with another sum.

   (a) $24 + 56 = \underset{\textbf{g.c.f.}}{\_\_\_\_\_} \times (\_\_\_\_\_ + \_\_\_\_\_)$ (b) $20 + 45 = \underset{\textbf{g.c.f.}}{\_\_\_\_\_} \times (\_\_\_\_\_ + \_\_\_\_\_)$