Name: _____ Date: _____

DIVISION
N-GEN MATH® 7

Being able to divide two integers quickly and effectively is important in a variety of contexts. The process of long division is one you've learned repeatedly. Today we will review it along with converting improper fractions into mixed numbers.

***Exercise* #1:** Review the process of long division by finding each of the following **quotients** (the name given to the result of a division problem).

(a) $15\overline{)\,945}$

(b) $67\overline{)\,15{,}678}$

Division has many important applications in the real world, the most obvious being to find out how many objects are in a group if a total has been divided evenly amongst a number of groups.

***Exercise* #2:** A soccer tournament has a total of 304 players. If there are 16 teams with an equal number of players on each team, how many **players** are there **per team**?

Division often has units of **one quantity "per" another quantity**, in other words, units of a **rate** or **ratio**. But, we sometimes end up dividing by a rate, as in the following problem.

***Exercise* #3:** Yellowbell Farm produced 1,632 eggs in a day and put them in cartons that hold 12 **eggs per carton**.

(a) Find the quotient:

$12\overline{)\,1{,}632}$

(b) What does your answer in (a) represent in terms of the real world situation?

Recall that division can also be represented using **fractions**. This is increasingly important to understand because in higher level math the classic division sign, ÷, rarely gets used and the fraction bar is much more common.

***Exercise* #4:** Each of the following fractions can be converted to a whole number using division. Do so and show the long division if needed.

(a) $\frac{12}{2}$ (b) $\frac{45}{5}$ (c) $\frac{207}{9}$

Understanding the correspondence between division and fractions is key when we convert an **improper fraction** (one whose numerator is larger than its denominator) into a mixed number (i.e. a whole number along with a fraction). Review the idea in the next exercise.

***Exercise* #5:** Consider the improper fraction $\frac{37}{5}$. Answer the following questions.

(a) What is the closest multiple of 5 that is less than 37?

(b) Write this fraction into the sum of two fractions, one of which has a numerator equal to your answer in (a). Simplify this sum into a mixed number.

(c) Perform the long division: $5\overline{)\,37\,}$. What is the remainder? How does this correspond to your answer in (b)?

***Exercise* #6:** Write each of the following improper fractions as mixed numbers by first performing the long division to determine the remainder.

(a) $\frac{60}{7}$ (b) $\frac{185}{12}$

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DIVISION
N-GEN MATH® 7 HOMEWORK

FLUENCY

1. Find the **quotient** for each of the following division problems. Show your work. Each answer will be a whole number.

   (a) $8\overline{)504}$ (b) $16\overline{)1{,}392}$ (c) $57\overline{)9{,}576}$

2. Which of the following is the remainder when 448 is divided by 17?

   (1) 5 (3) 9

   (2) 6 (4) 13

3. Convert each of the following fractions to whole numbers.

   (a) $\frac{72}{9}$ (b) $\frac{40}{8}$ (c) $\frac{32}{2}$ (d) $\frac{187}{17}$

4. Write each of the following improper fractions as mixed numbers.

   (a) $\frac{51}{8}$ (b) $\frac{169}{4}$ (c) $\frac{389}{24}$

USING YOUR MATH

5. Franklin picked 342 potatoes out of his garden this season and will store them in 6 baskets. If each basket holds the same number of potatoes, how many potatoes per basket will there be?

6. There are 365 days in a non-leap year. There are 7 days per week. How many weeks are there in a year? Is it a whole number? If not, what is the remainder?

7. Pizza often comes in slices that are $\frac{1}{8}$ of a pizza each. Maria buys 36 slices for a birthday party she is throwing.

   (a) Represent the **total** amount of pizza that Maria is buying as a fraction. Do not simplify.

   (b) Write your answer from (a) as a mixed number in simplest form. What does this answer tell you?

8. A machine that makes cellphones can produce 47 cellphones per hour when running. The machine can only run 8 hours per day. How many days will it take to produce 4,512 phones?