Name: _____ Simplest (Lowest) Terms

Sometimes, you have a fraction and you want to make it as simple as can be—in other words, you want the denominator to be as small as possible. This is called putting the fraction in **simplest form**, or **reducing** it to **lowest terms**.

How do you go about it?—one way is to keep dividing the numerator and denominator by common divisors until you can't simplify (reduce) the fraction any further.

To see how this works, let's try simplifying the fraction **16/20**.

Since the numerator and denominator are both even numbers, we can divide both by 2. This will give us a fraction that is equivalent to, but simpler than, **16/20**.

$$\frac{16}{20} \div 2 = \frac{8}{10}$$

Our simplified fraction, **8/10**, is simpler than our original fraction **16/20**—it has a smaller numerator and denominator. But we can do better!

8/10 also has both a numerator and denominator that can be divided by 2. So we continue simplifying. We keep this up until we get to a fraction that can't be simplified further.

$$\frac{8}{10} \div 2 = \frac{4}{5}$$

$$\frac{16}{20} = \frac{8}{10} = \frac{4}{5}$$

Now that we've simplified **8/10** to **4/5**, we've arrived at a fraction that we can't simplify further. There is no number that both 4 and 5 can be divided by.

This means **4/5** is the simplest form of **16/20**.

Had we been a bit more clever. We might have seen at the outset that we could divide both 16 and 20 by **4**. In which case, we could have gotten our fraction **16/20** into simplest form in just one step instead of two. This would have saved us time and trouble

16/20 = (16 ÷ 4)/(20 ÷ 4) = 4/5

It will always take fewer steps to get a fraction into simplest form if you start out dividing by the largest number possible. But it is not always easy to know what that is. And, no matter how you start, you will eventually reach the *same simplest fraction* if you just keep at it long enough.

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Not all fractions can be reduced (simplified). Some are already as simple as they can be—like 4/5. Another example is 1/2. (You can't reduce any fraction that has a numerator of 1. Why?)

You can’t reduce 5/6, 6/7 or 7/8 either. (You can’t reduce any fraction whose numerator is just one less than its denominator.)

There are many other fractions that can’t be reduced as well. For example, 17/36. Why?—because 17 is prime (it has no factors other than itself and 1) and 36 is not divisible by 17.

When a fraction can’t be reduced (simplified), we say that it is **irreducible**.

1. *Circle the fractions that are irreducible, and reduce the others to simplest form:*

$$\frac{18}{24} = \frac{18 \div 6}{24 \div 6} = \frac{3}{4}$$

$\frac{6}{10}$ $\frac{3}{12}$

$\frac{5}{15}$ $\frac{9}{11}$

$\frac{20}{30}$ $\frac{6}{18}$

$\frac{7}{20}$ $\frac{6}{9}$