We've seen that two different fractions can represent the same amount. We call these **equivalent** fractions. But, how do we get equivalent fractions?

A fraction is a part of a whole. We divide the whole into a certain number of equal pieces (the denominator) and we take some of those pieces (the numerator).

We get an equivalent fraction when we split up the pieces even further into new smaller pieces. We must spit up all the pieces in the same way—both the pieces we take (numerator) and the pieces of the whole (denominator).

Let's see how we do this:

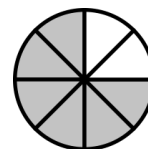Here we have a circle that was originally divided into 4 equal pieces. 3 pieces (**3/4** of the circle) are grey.
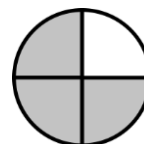
Then each piece was split further into 2 equal pieces.
There are now **(2 x 3) = 6** *grey* pieces.
And **(2 x 4) = 8** *total* pieces.
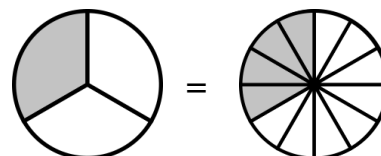**6/8** of the circle is now grey.

Notice that both the 3 grey pieces (the numerator of the original fraction) and the 4 total pieces (denominator of the original fraction) get multiplied by 2.

3/4 = (2 x 3)/(2 x 4) = 6/8

Let's do another:

Here each original piece has been split into **four**.

Before: **1** grey piece and **3** total pieces

After: (**4**x1) = **4** grey pieces and (**4**x3) = **12** total pieces.

Before **1/3** of the circle was grey; after **4/12** is grey.
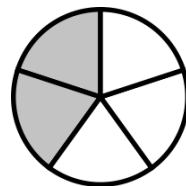**1/3 = (4 x 1)/(4 x 3) = 4/12**

Notice that we ended up with FOUR times as many grey pieces and FOUR times as many total pieces. Both the numerator of the original fraction and the denominator get multiplied by 4.
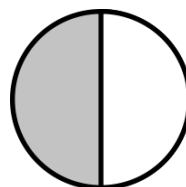
Name the fraction. Then split each piece of the whole into equal pieces to come up with an equivalent fraction.
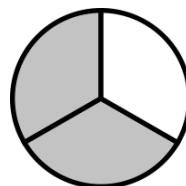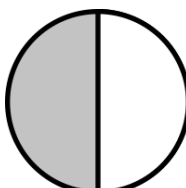
1. Split each piece in *two*.   _____ = _____

2. Split each piece in *three*.   _____ = _____

3. Spit each piece in *two*.   _____ = _____

4. Spit each piece in *five*.   _____ = _____

Did you notice that when you split each piece of the whole into the same number of smaller pieces, both the number of colored pieces (the numerator) and the total number of pieces (the denominator) got multiplied by the same number?

You can change any fraction to an equivalent fraction by splitting each piece of the whole into the same number of smaller pieces. This is the same as multiplying both the numerator and the denominator of the original fraction by the same number.

This means that whenever you multiply both the numerator and the denominator of a fraction by the same number, you will get an equivalent fraction.