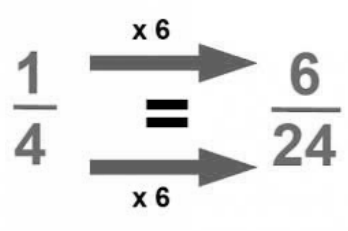
Name: _____ Equivalent Fractions Again

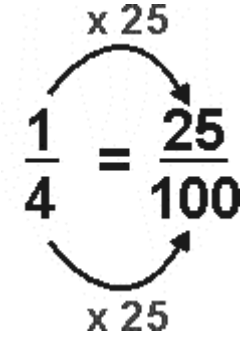
We can change any fraction to an equivalent fraction by multiplying *both* its numerator and its denominator by the same number. We've seen that this is the same as splitting each part of the whole into the same number of smaller parts.

For example, we know that **1/4** is equivalent to **6/24** because (6 x 1) = 6 *and* (6 x 4) = 24.



When we multiply *both* the numerator and the denominator of 1/4 by 6 we get 6/24. We do not need to draw a picture.

1/4 is also equivalent to **25/100**, because (25 x 1) = 25 *and* (25 x 4) = 100.



When we multiply *both* the numerator and the denominator of 1/4 by 25, we get 25/100.

Do you remember the **Transitive Property of Equality**? It tells us that if two quantities are each equal to the same thing, then they are equal to each other.

Since 6/24 and 25/100 are each equal to 1/4, they are equal to each other (by the transitive property). This means that 1/4, 25/100 and 6/24 are all equivalent fractions. If you were given the choice between 1/4, 6/24, or 25/100 of a candy bar, you would get the same amount whichever one you picked.

Let's say we have the fraction 5/8 and we want to change it to twenty-fourths. In other words, we want to know how many twenty-fourths are equivalent to 5/8. Here's the problem: **5/8 = ?/24**. What do you do?

Think: To get 24, I multiply 8 (denominator) by 3.
To get an equivalent fraction, I must also multiply 5 (numerator) by 3. (5 x 3) = 15, so 5/8 = 15/24.

$$\frac{5}{8} \times 3 = \frac{15}{24}$$

How about changing 4/6 to twenty fourths?
Here's the problem: **4/6 = ?/24**
To get 24, I multiply 6 by 4.
I must also multiply 4 (numerator) by 4.
(4 x 4) = 16. So, 4/6 = 16/24.

$$\frac{4}{6} \times 4 = \frac{16}{24}$$