EQUIVALENT FRACTIONS
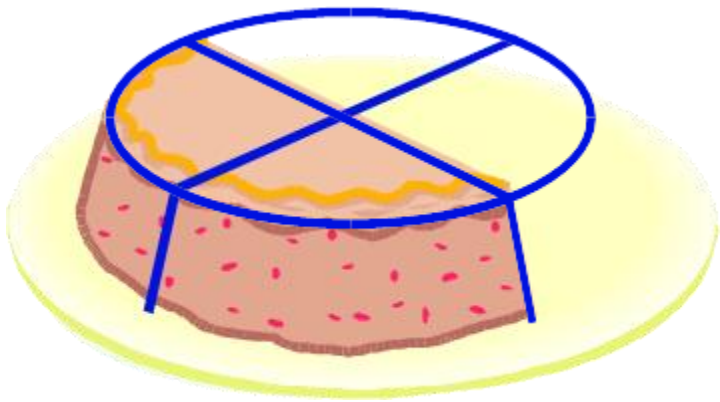
Equivalent fractions

In the following picture we have ½ of a cake because the whole cake is divided into two congruent parts and we have only one of those parts.
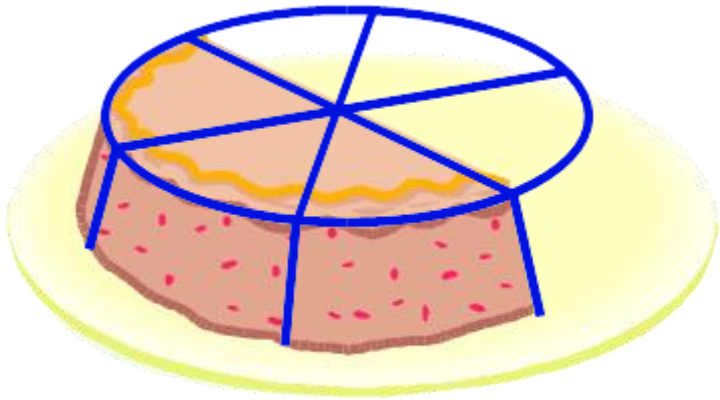
But if we cut the cake into smaller congruent pieces, we can see that

$$\frac{1}{2} = \frac{2}{4}$$

Equivalent fractions

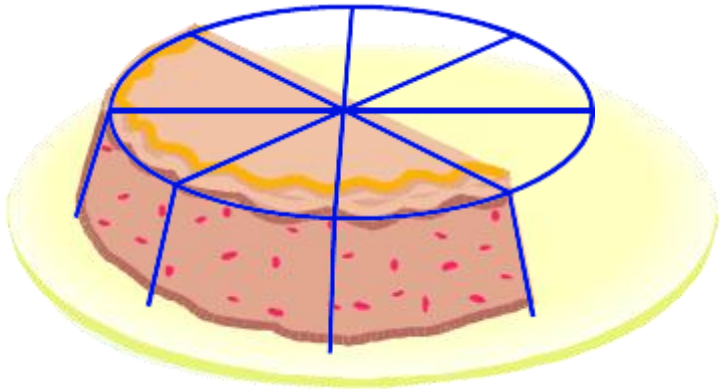Or we can cut the original cake into
6 congruent pieces:

now we have 3 pieces out of 6 equal
pieces, but the total amount we have is
still the same. Therefore,

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$$

Equivalent fractions

we can cut the original cake into 8 congruent pieces:

then we have 4 pieces out of 8 equal pieces, but the total amount we have is still the same.
Therefore, $\dfrac{1}{2} = \dfrac{2}{4} = \dfrac{3}{6} = \dfrac{4}{8}$
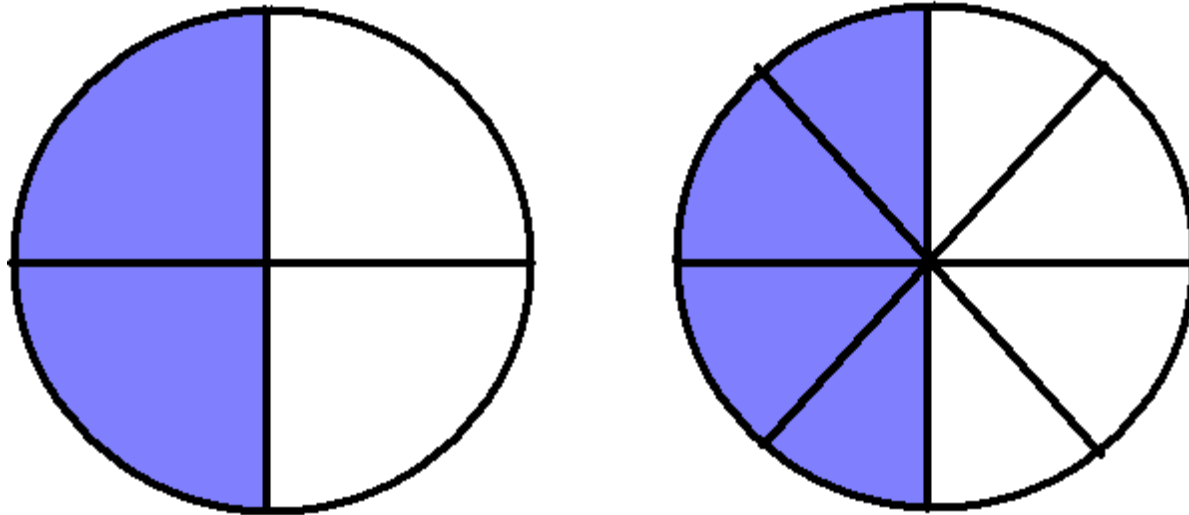
We can generalize this to:

whenever n is not zero

$$\dfrac{1}{2} = \dfrac{1 \times n}{2 \times n}$$

Equivalent fractions

Equivalent fractions are fractions that name the same amount.

$$\frac{2}{4} = \frac{4}{8}$$

To make equivalent fractions

 • Multiply the numerator and denominator by the same number.
 • Divide the numerator and denominator by the same number

We can choose any number to multiply by.
For example we can multiply by 2:

So, 3/5 is equivalent to 6/10.

$$\frac{3}{5} \begin{array}{c} X\ 2 \\ X\ 2 \end{array} = \frac{6}{10}$$

If you have larger numbers, you can make equivalent fractions using division. Divide by a common factor.

$$\frac{28}{35} \begin{array}{c} \div 7 \\ \div 7 \end{array} = \frac{4}{5}$$

In this example, we can divide both numbers by 7.

28/35 is equivalent to 4/5.

Fractions in Simplest Form

Fractions are in simplest form when the numerator and denominator do not have any common factors besides 1.

Examples of fractions that are in simplest form:

$$\frac{4}{3} \qquad \frac{3}{7} \qquad \frac{5}{8}$$

Writing Fractions in Simplest Form or Reduce a fraction to lowest terms

- Find the greatest common factor of the numerator and denominator.
- Divide both numbers by the greatest common factor

$$\frac{20}{28} \begin{array}{c} \div\ 4 \\ \div\ 4 \end{array} = \frac{5}{7} \longleftarrow$$ Simplest Form

20: 1, 2, 4, 5, 10, 20

28: 1, 2, 4, 7, 14, 28

Common factors: 1, 2, 4

Greatest common factors: 4

Place the fraction on the number line
Let's Try It!

https://goo.gl/juB9Bz
https://goo.gl/dLSFzZ
https://goo.gl/ZJd4IK
https://goo.gl/tCEAOr