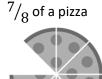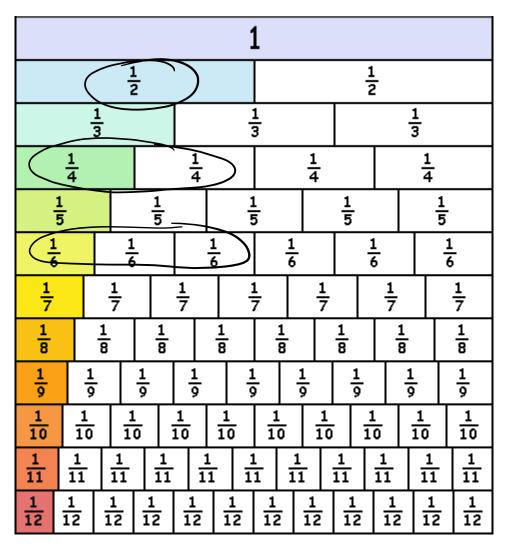# Lesson 9 – Equivalent and Basic Fractions

Fractions are used to express parts of a whole in regards to lengths, volumes, weights, and other measures. We can say that we have:

$1/2$ of a glass of water

$7/8$ of a pizza

When two or more fractions have the same value, they are called **equivalent fractions** and the chart below shows this.

1											
$\frac{1}{2}$						$\frac{1}{2}$					
$\frac{1}{3}$				$\frac{1}{3}$				$\frac{1}{3}$			
$\frac{1}{4}$			$\frac{1}{4}$			$\frac{1}{4}$			$\frac{1}{4}$		
$\frac{1}{5}$		$\frac{1}{5}$		$\frac{1}{5}$			$\frac{1}{5}$			$\frac{1}{5}$	
$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$		$\frac{1}{6}$	
$\frac{1}{7}$	$\frac{1}{7}$		$\frac{1}{7}$		$\frac{1}{7}$		$\frac{1}{7}$		$\frac{1}{7}$		$\frac{1}{7}$
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$		$\frac{1}{8}$		$\frac{1}{8}$		$\frac{1}{8}$		$\frac{1}{8}$	$\frac{1}{8}$
$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$		$\frac{1}{9}$		$\frac{1}{9}$	$\frac{1}{9}$		$\frac{1}{9}$	$\frac{1}{9}$
$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$		$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
$\frac{1}{11}$	$\frac{1}{11}$	$\frac{1}{11}$	$\frac{1}{11}$	$\frac{1}{11}$	$\frac{1}{11}$	$\frac{1}{11}$	$\frac{1}{11}$	$\frac{1}{11}$	$\frac{1}{11}$	$\frac{1}{11}$	$\frac{1}{11}$
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

We can see from the chart above that (give 4 equivalent fractions): $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$

$$\frac{5}{10} = \frac{6}{12} = \frac{7}{14} = \frac{8}{16}$$

Parts of fractions:

$$\frac{3}{4}$$

3 ← numerator (top #)

4 ← denominator (bottom #)

To make equivalent fractions, we must **multiply** or **divide** the **numerator** (top number) AND **denominator** (bottom number) by any number other than 1. And we multiply or divide top and bottom with the **same number**.

Example #1:   Multiplying to get EF.

$$\frac{3}{5} \times \frac{5}{5} = \boxed{\frac{15}{25}}$$

Example #2:   Dividing to get EF.

$$\frac{8}{12} \div \frac{2}{2} = \boxed{\frac{4}{6}}$$

A **basic fraction** is formed when we can no longer divide both the numerator and denominator by any number other than the number 1.

Example #1:

$$\frac{36}{42} = \frac{36 \div 2}{42 \div 2} = \frac{18 \div 3}{21 \div 3} = \boxed{\frac{6}{7}}$$

Example #2:

$$\frac{64}{80} = \frac{64 \div 2}{80 \div 2} = \frac{32 \div 4}{40 \div 4} = \frac{8}{10}$$

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