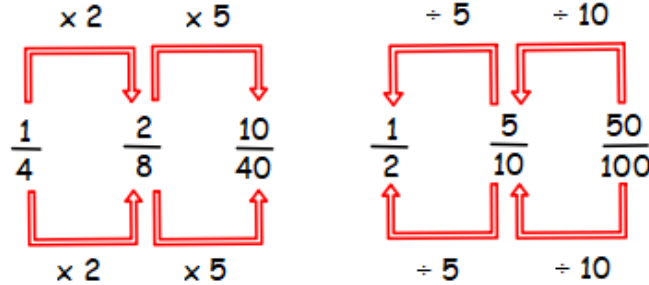


Key Vocabulary	
half	
quarter	
whole	
equal parts	
three quarters	
third	
tenth	
equivalent fractions	
unit fraction	
non-unit fraction	
numerator	
denominator	
proper fractions	
improper fractions	
fifth	
mixed numbers	
integer	
complements	

## Equivalent Fractions

To find equivalent fractions, you need to multiply or divide the numerator and the denominator by the same number.



## Improper Fractions

$$\frac{9}{6}$$

$$\frac{6}{6}$$

These are called **improper fractions** as the numerator is larger than, or equal to, the denominator.



## Mixed Numbers

$$3 \frac{1}{4}$$

A **mixed number** is a number that is made up of a whole number and a fraction.



## Converting Improper Fractions to Mixed Numbers

To convert an improper fraction to a mixed number we divide the numerator by the denominator.

$$\frac{9}{6} \quad 9 \div 6 = 1 \text{ r } 3$$

$$\downarrow \quad \downarrow$$

$$1 \frac{3}{6}$$

The remainder goes over the original denominator.

## Converting Mixed Numbers to Improper Fractions

$$3 \frac{1}{4} \quad \frac{12}{4} + \frac{1}{4} = \frac{13}{4}$$

Make the whole number a fraction by multiplying it by the denominator.  
 $3 \times 4 = 12$

Then add the fractions together.

## Adding and Subtracting Fractions

If the denominators are the same, you simply add or subtract the numerator.

$$\frac{6}{8} - \frac{2}{8} = \frac{4}{8}$$

$$\frac{2}{8} + \frac{1}{2} = \frac{2}{8} + \frac{4}{8} = \frac{6}{8}$$

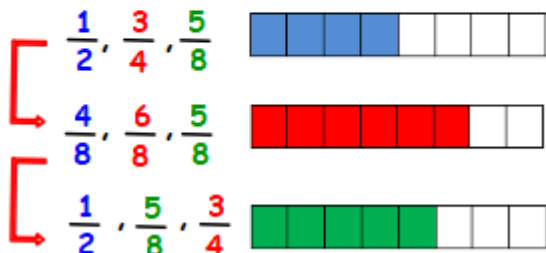
Find an equivalent fraction so the denominators are the same.

When adding or subtracting fractions that have denominators that are multiples of each other, we need to change one fraction so they both have the same denominator.



## Comparing and Ordering Fractions

$$\frac{9}{16} < \frac{5}{8} \times 2 = \frac{10}{16}$$



Remember to order the original fractions.



## Multiplying Unit Fractions by Integers

When multiplying fractions by integers, the denominator stays the same.

$$\frac{1}{3} \times 4 = \frac{4}{3} \qquad 3 \times \frac{2}{7} = \frac{6}{7}$$

## Multiplying Mixed Numbers by Integers

When multiplying mixed numbers by integers, we need to convert the mixed number into an improper fraction.

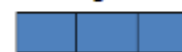
$$2\frac{2}{3} \times 2 = \frac{8}{3} \times 2 = \frac{16}{3} = 5\frac{1}{3}$$

Convert from a mixed number into an improper fraction

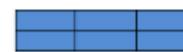
## Subtracting From Mixed Numbers

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

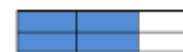
Starting Number



Convert



Subtract



## Subtracting Mixed Numbers - Breaking the Whole

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

Convert into an improper fraction.

$$\frac{8}{6} - \frac{4}{6} = \frac{4}{6}$$

## Adding Two Mixed Numbers

$$1\frac{3}{6} + 1\frac{1}{3} = 1\frac{3}{6} + 1\frac{2}{6} = 2\frac{5}{6}$$



## Subtracting Two Mixed Numbers

Subtract the whole numbers first and then the fractions.

$$2\frac{5}{6} - 1\frac{2}{3}$$

$$2 - 1 = 1 \qquad \frac{5}{6} - \frac{4}{6} = \frac{1}{6}$$

$$1 + \frac{1}{6} = 1\frac{1}{6}$$

Remember - To find fractions of amounts we **divide by the denominator** and then **multiply by the numerator**.

