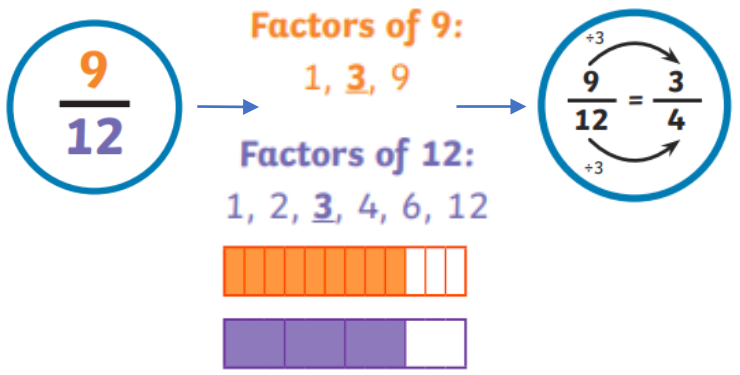


Key Vocabulary	
unit fraction	
non-unit fraction	
decimal equivalents	
proper fractions	
improper fractions	
mixed numbers	
compare	
order	
factor	
common denominator	
lowest/highest common multiple	
simplify	

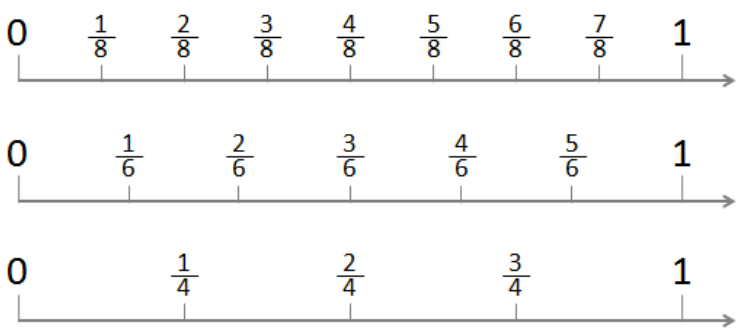
## Simplify fractions

**Factors** can be used to help **simplify** fractions.



**In other words**, what times tables can we divide the numerator and denominator by?

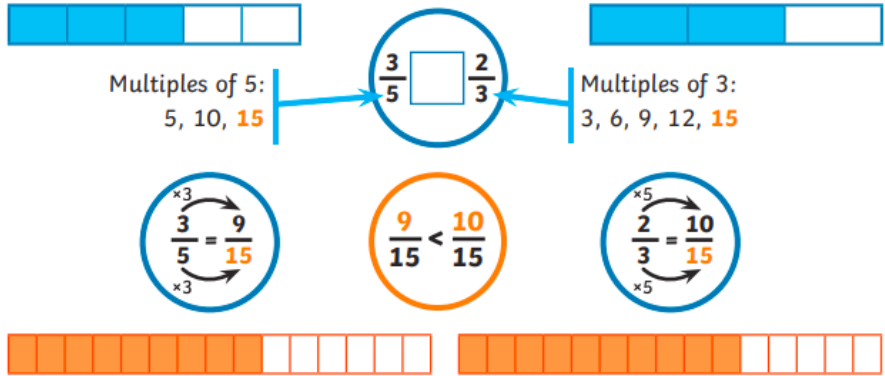
## Fractions on a number line



## Compare and order

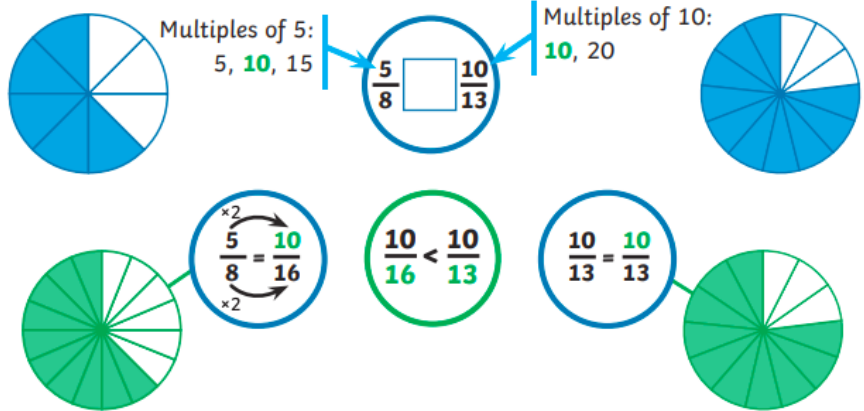
### Use the common denominator

We can still compare fractions when the denominators are not multiples of the same number. Find the lowest common multiple of the denominators to find equivalent fractions with the same denominators. Then we can easily compare and order them.




### Use the common numerator


We can compare fractions by finding a common numerator. When the numerators are the same, the larger the denominator, the smaller the fraction.



## Add and subtract proper fractions



$$\frac{4}{7} + \frac{2}{7} = \frac{6}{7}$$



$$\frac{8}{11} - \frac{3}{11} = \frac{5}{11}$$

When fractions need to be **added, subtracted or ordered** they need to have the **same denominator**. We need to **convert** all the **fractions to the lowest common denominator**.

$$\frac{2}{7} \quad \frac{3}{5}$$

Multiples of 7: 7, 14, 21, 28, **35**  
 Multiples of 5: 5, 10, 15, 20,  
 25, 30, **35**

$$\frac{2}{7} = \frac{10}{35}, \quad \frac{3}{5} = \frac{21}{35}$$

$$\frac{10}{35} + \frac{21}{35} = \frac{31}{35}$$

$$\frac{9}{10} \quad \frac{1}{4}$$

Multiples of 10: 10, **20**  
 Multiples of 4: 4, 8, 12, 16, **20**

$$\frac{9}{10} = \frac{18}{20}, \quad \frac{1}{4} = \frac{5}{20}$$

$$\frac{18}{20} - \frac{5}{20} = \frac{13}{20}$$


## Multiply fractions

### Multiplying fractions by fractions

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

Multiply the numerators together. Then multiply the denominators.  $\frac{1}{3} \times \frac{1}{2}$  is the same as finding  $\frac{1}{3}$  of  $\frac{1}{2}$

### Multiplying fractions by whole numbers



$$\frac{2}{5} \times 3 \rightarrow \frac{6}{3} = 2$$

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

## Divide fractions

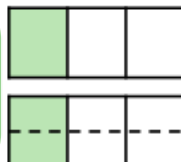
$$\frac{2}{5} \div 2 = \frac{1}{5}$$

Mo is dividing  $\frac{1}{3}$  by 2



I have divided one third into 2 equal parts. Each part is worth  $\frac{1}{6}$

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



$\div 2$  is the same as  $\times \frac{1}{2}$

## Add and subtract mixed numbers

### Add or subtract the whole numbers and the fractions separately

$$2 \frac{2}{5} + 1 \frac{3}{10}$$

$$2 + 1 = 3$$

$$\frac{2}{5} + \frac{3}{10} = \frac{4}{10} + \frac{3}{10} = \frac{7}{10}$$

$$3 + \frac{7}{10} = 3 \frac{7}{10}$$

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

$$2 - 1 = 1$$

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

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

### Convert the mixed numbers to improper fractions

$$2 \frac{2}{5} + 1 \frac{3}{10}$$

$$2 \frac{2}{5} = \frac{12}{5}$$

$$1 \frac{3}{10} = \frac{13}{10}$$

$$\frac{12}{5} + \frac{13}{10} = \frac{24}{10} + \frac{13}{10} = \frac{37}{10}$$

$$\frac{37}{10} = 3 \frac{7}{10}$$

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

$$2 \frac{1}{2} = \frac{5}{2}$$

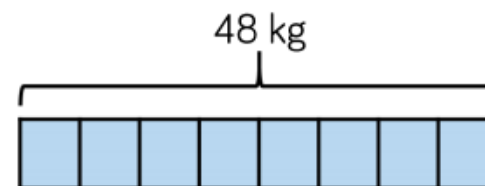
$$1 \frac{1}{4} = \frac{5}{4}$$

$$\frac{5}{2} - \frac{5}{4} = \frac{10}{4} - \frac{5}{4} = \frac{5}{4}$$

$$\frac{5}{4} = 1 \frac{1}{4}$$

## Fraction of an amount

### Find $\frac{5}{8}$ of 48kg

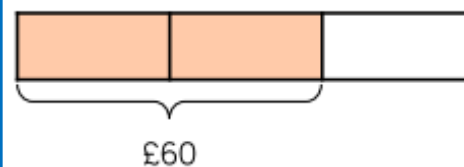


$$\frac{1}{8} \text{ of } 48\text{kg} = 48 \div 8 = 6\text{kg}$$

$$\frac{5}{8} = 6 \times 5 = 30\text{kg}$$

## Find the whole

Jack has spent  $\frac{2}{3}$  of his money. He spent £60, how much money did he start with?



$$\frac{2}{3} = £60 \text{ so } \frac{1}{3} = £30$$

$$£60 + £30 = £90 / £30 \times 3 = £90$$