### 20.4.20 Revision of fractions. LO to use common factors to simplify fractions.

#### Revise

## Use common factors to simplify fractions

Fractions which have the same value, but represent this value using different denominators and numerators, are equivalent. We can recognise and find equivalent fractions by multiplying or dividing the numerator and denominator by the same amount.

When we simplify a fraction, we use the **highest common factor** of the numerator and denominator to reduce the fraction to the lowest term equivalent fraction (simplest form).

<b>15</b> Factors of 15: 1	15 3 5	The highest
<b>36</b> Factors of 36: 1	36 2 18 3 <del>12 4 7 6</del>	common factor is 3.
	<b>15</b> ÷ 3 = 5 <b>5</b>	
	<b>36</b> ÷ 3 = 12 <b>12</b>	

### Use common factors to simplify fractions

# What is the highest common factor of the numerator and denominator in this fraction?



# Use common factors to simplify fractions

#### Simplify this fraction to its lowest terms.



# Use common factors to simplify fractions

#### Which number completes this equivalent fraction sequence?



# Use common factors to simplify fractions

#### Which number completes this equivalent fraction pair?



#### Revise

### Use common multiples to express fractions in the same denomination

To compare or calculate with fractions, we often need to give them a **common denominator**.

We do this by looking at the denominators and finding their **lowest** common multiple.

$$\begin{array}{c} 2 \\ 3, 6, 9, 12 \\ \hline 15 \\ \hline 3 \\ \hline 3 \\ \hline 3 \\ \hline 5 \\ \hline 5$$

We can now change the fractions to have a common denominator of 15 using multiplication. Remember that whatever we do to the denominator, we have to do to the numerator.

Use common multiples to express fractions in the same denomination

What is the lowest common denominator of these two fractions?





# Use common factors to simplify fractions

# What is the lowest common denominator of these two fractions?



### Use common factors to simplify fractions

#### Express these fractions using the lowest common denominator.



Use common multiples to express fractions in the same denomination

What is the lowest common denominator of these two fractions?



### Independent work

Complete questions on Simplify Factions sheet Mild Questions 1-3 or separate mild sheet. Spicy Questions 4-6 Extra Spicy Questions 7-9

Check your answers at the end.

#### <u>21.4.20</u>

#### LO to revise ordering and comparing fractions.

#### Revise

#### Compare and order fractions, including fractions > 1

We can order and compare fractions. When comparing fractions, we can use symbols to show which is the smaller or the larger fraction.

#### To compare and order...



fractions with the same denominators:	fractions with different denominators:	fractions with mixed numbers:	
Simply compare the numerators.	Change the fractions into equivalent fractions with the lowest common denominator, then compare the numerators. Remember that whatever we do to the denominator, we must do to the numerator.	Change the mixed number into an improper fraction, by multiplying the whole number by the denominator and then adding on the numerator. Then, continue as appropriate.	
$\frac{5}{9} > \frac{2}{9}$	Compare $\frac{5}{9}$ and $\frac{3}{5}$ The lowest common multiple is 45.	Compare $1\frac{2}{7}$ and $1\frac{1}{3}$ As improper fractions $=\frac{9}{7}$ and $\frac{4}{3}$ The lowest common multiple is 21.	
	$\frac{5}{9} = \frac{25}{45} \qquad \frac{3}{5} = \frac{27}{45} \qquad \frac{25}{45} < \frac{27}{45}$	$\frac{9}{7} = \frac{27}{21} \qquad \frac{4}{3} = \frac{28}{21} \qquad \frac{27}{21} < \frac{28}{21}$	

Compare and order fractions, including fractions > 1



Compare and order fractions, including fractions > 1



#### Compare and order fractions, including fractions > 1



#### Compare and order fractions, including fractions > 1



#### Compare and order fractions, including fractions > 1

#### Which of these fractions is the smallest?



#### Compare and order fractions, including fractions > 1

#### Which of these fractions is the greatest?



### Independent work

### Sheet – Ordering fractions – 21.4.20



# LO to revise adding and subtracting fractions, including mixed numbers.

#### Revise

### Add and subtract fractions with different denominators and mixed numbers

When we add and subtract fractions with different denominators, we need to give them a common denominator.

We use the lowest common multiple as the common denominator to create equivalent fractions which we can then add and subtract.

If one of the fractions is a multiple of the other, use multiplication to change the smaller denominator to the same denominator as the other fraction.	If the fractions aren't multiples of each other, use multiplication to change them both to the lowest common denominator.
$\frac{5}{9} + \frac{2}{3} =$	$\frac{8}{9} - \frac{3}{4} =$
$\frac{5}{9} + \frac{2 \times 3}{3 \times 3} = \frac{6}{9}$	$\frac{8 \times 4}{9 \times 4} = \frac{32}{36} \qquad \qquad \frac{3 \times 9}{4 \times 9} = \frac{27}{36}$
$\frac{5}{9} + \frac{6}{9} = \frac{11}{9} = 1\frac{2}{9}$	$\frac{32}{36} - \frac{27}{36} = \frac{5}{36}$

#### Revise

### Add and subtract fractions with different denominators and mixed numbers

If the fractions involve adding or subtracting mixed numbers, there are two methods that can be used.

	/ // ľ / //
Add the whole numbers and the fractions separately.	Convert the mixed numbers to improper fractions.
$2\frac{3}{5} + 3\frac{1}{4} =$	$2\frac{5}{6} - 1\frac{1}{5} =$
2 + 3 = 5 $\frac{3}{5} + \frac{1}{4} = \frac{12}{20} + \frac{5}{20} = \frac{17}{20}$	$\frac{17}{6} - \frac{6}{5} = \frac{85}{30} - \frac{36}{30} = \frac{49}{30}$
5 + $\frac{17}{20}$ = 5 $\frac{17}{20}$	$\frac{49}{30} = 1 \frac{19}{30}$

### Add and subtract fractions with different denominators and mixed numbers

#### What is the answer to this fraction addition?



### Add and subtract fractions with different denominators and mixed numbers

#### What is the answer to this fraction addition?



### Add and subtract fractions with different denominators and mixed numbers

#### What is the answer to this fraction subtraction?



### Add and subtract fractions with different denominators and mixed numbers

#### What is the answer to this fraction subtraction?



### Independent work

### Mild – 22.4.20 – game you can play Spicy / Extra Spicy – Add Sub 22.4.20

# LO to revise multiplying and dividing fractions.

#### Revise

#### Multiply simple pairs of proper fractions, writing the answer in its simplest form

When we multiply fractions by whole numbers or other fractions, we can think of the multiplication sign as the word 'of'.

$\frac{1}{3} \times 15 = 5$	is the same as	$\frac{1}{3}$ of 15 = 5
Multiplying a proper fraction by a whole number	Multiplying pairs of proper fractions	Cancelling out
	r	

Multiply simple pairs of proper fractions, writing the answer in its simplest form

What is the answer to this fraction multiplication?

![](_page_31_Figure_3.jpeg)

Multiply simple pairs of proper fractions, writing the answer in its simplest form

What is the answer to this fraction multiplication?

![](_page_32_Figure_3.jpeg)

Multiply simple pairs of proper fractions, writing the answer in its simplest form

What is the answer to this fraction multiplication?

![](_page_33_Figure_3.jpeg)

#### Revise

#### Divide proper fractions by whole numbers

Multiplication and division are inverse operations of each other.

#### ÷ 5 is the same as $\times \frac{1}{5}$ ÷ 7 is the same as $\times \frac{1}{7}$ ÷ 10 is the same as $\times \frac{1}{10}$

When we divide a proper fraction by a whole number, we actually use multiplication.

$$\frac{5}{9} \div 6 =$$
 $\frac{3}{8} \div 4 =$ 
 $\frac{5}{6} \div 10 =$ 
 $\frac{5}{9} \times \frac{1}{6} =$ 
 $\frac{3}{8} \times \frac{1}{4} =$ 
 $\frac{5}{6} \times \frac{1}{10} =$ 
 $\frac{5}{9} \times \frac{1}{6} =$ 
 $\frac{3 \times 1}{8 \times 4} = \frac{3}{32}$ 
 $\frac{5 \times 1}{6 \times 10} = \frac{5}{60} = \frac{1}{12}$ 

#### Divide proper fractions by whole numbers

#### What is the answer to this fraction division?

![](_page_35_Figure_3.jpeg)

#### Divide proper fractions by whole numbers

#### What is the answer to this fraction division?

![](_page_36_Figure_3.jpeg)

![](_page_37_Figure_0.jpeg)

#### Divide proper fractions by whole numbers

#### What is the answer to this fraction division?

![](_page_37_Figure_3.jpeg)

### Independent work

Multi divide 23.4.20 sheets. Choose Mild or Spicy, solve some multiplying questions and some dividing. We suggest you work for about 20 minutes.

![](_page_39_Picture_0.jpeg)

### LO to calculate fractions of an amount and the decimal equivalents of fractions.

#### Revise

#### Calculate fractions of an amount

To calculate fractions of an amount, there are different methods to choose from.

Multiplying the unit fraction	Subtracting from the total amount	Using fractions of an amount to find the whole

#### **Calculate fractions of an amount**

#### What is the answer to this fraction calculation?

![](_page_41_Figure_3.jpeg)

#### Calculate fractions of an amount

#### What is the answer to this fraction calculation?

![](_page_42_Figure_3.jpeg)

#### Calculate fractions of an amount

#### What is the missing number in this fraction calculation?

![](_page_43_Figure_3.jpeg)

Every proper fraction has a decimal number equivalent which we can calculate by dividing the numerator by the denominator.

Common decimal equivalents of fractions can be learnt as facts:

Fraction	<u>1</u> 2	$\frac{1}{4}$	<u>1</u> 10	1 5
Decimal	0.5	0.25	0.1	0.2

We can calculate the decimal equivalents of trickier fractions using written methods of division:

![](_page_44_Figure_6.jpeg)

Sometimes a decimal equivalent will keep going infinitely. This is called a recurring decimal. In these cases, you can round the decimal or use a dot to show the same digit is repeated.

 $\frac{5}{9}$  = 0.56 rounded to two decimal places

 $\frac{5}{0} = 0.5$ 

![](_page_45_Picture_0.jpeg)

#### What is the decimal equivalent of this fraction?

![](_page_45_Figure_3.jpeg)

![](_page_46_Picture_0.jpeg)

# What is the decimal equivalent of this fraction rounded to two decimal places?

![](_page_46_Figure_3.jpeg)

![](_page_47_Picture_0.jpeg)

# What is the decimal equivalent of this fraction rounded to two decimal places?

![](_page_47_Figure_3.jpeg)

### Independent work

See how many of the Fractions of quantities 24.4.20 sheet you can solve in 20 minutes.