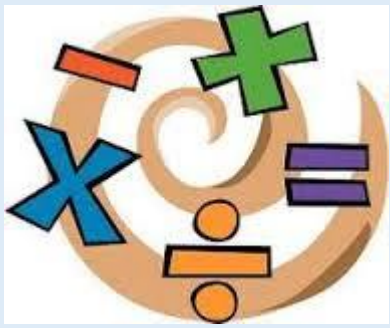


Welcome to maths at Abbey Park Middle School



**Abbey Park
Schools Federation**





Thinking is at the heart of Mathematics and, therefore, should be at the heart of Mathematical teaching and learning. At Abbey Park we believe that all children can do Maths (and do it well).



Aims of tonight's meeting

- To get an insight into how fractions, decimals and percentages are taught at APMS.
- To gain an understanding of the National Maths curriculum and expectations (CPA approach).
- To take away some ideas as to how to support your children at home.

Finding a fraction of an amount

$$\frac{1}{2}$$

← Numerator
← Denominator

$$\frac{3}{8} \text{ of } 240$$

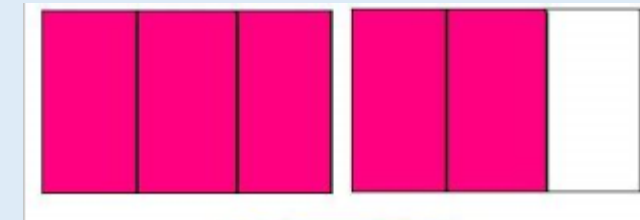
To find a fraction of an amount we divide the number by the denominator and then multiply our answer by the numerator.

Example: $\frac{3}{8}$ of 240 we divide 240 by 8 which = 30, we now know that $\frac{1}{8} = 30$. We need to find

$\frac{3}{8}$ so we multiply 30 by 3 = 90. The answer is 90.

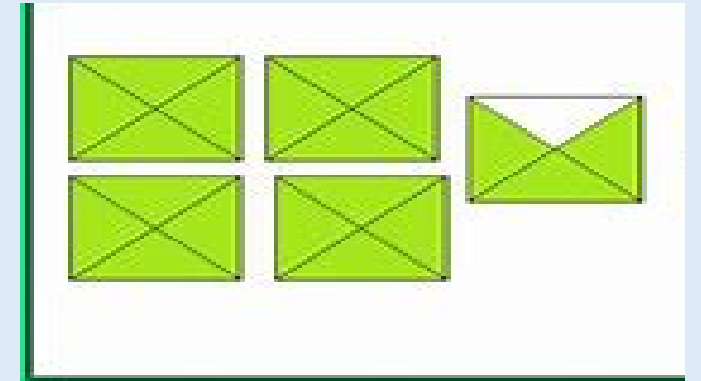
Changing an improper fraction to a mixed number

An improper fraction is a top heavy fraction, meaning it is more than a whole.



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

$$\frac{19}{4} = 4 \frac{3}{4}$$



Abstract version of converting improper fractions to mixed numbers

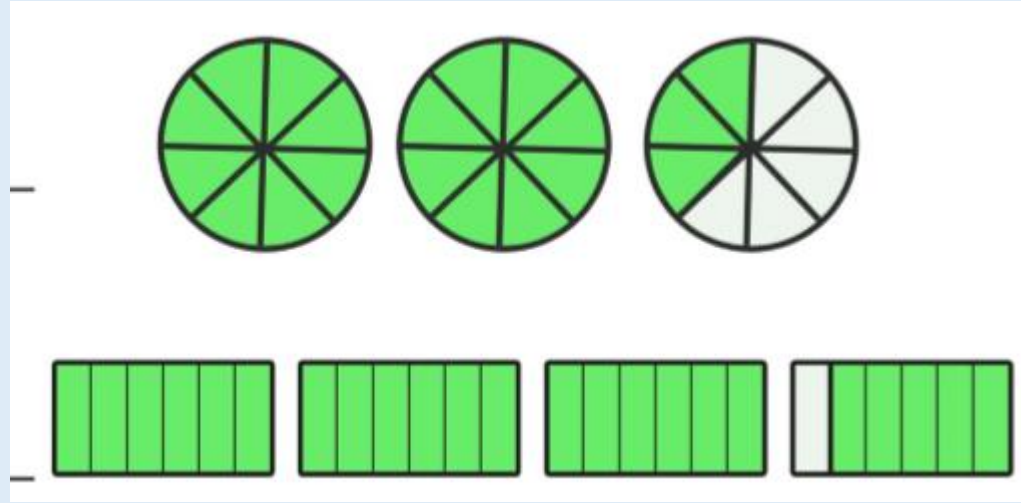
$\frac{15}{7}$ 7 fits into 15 twice ($2 \times 7 = 14$) with one 7th left over. So the answer

is $2 \frac{1}{7}$

Changing a mixed number to an improper fraction

A mixed number contains some whole numbers and fractions

E.g.: $2 \frac{3}{8}$

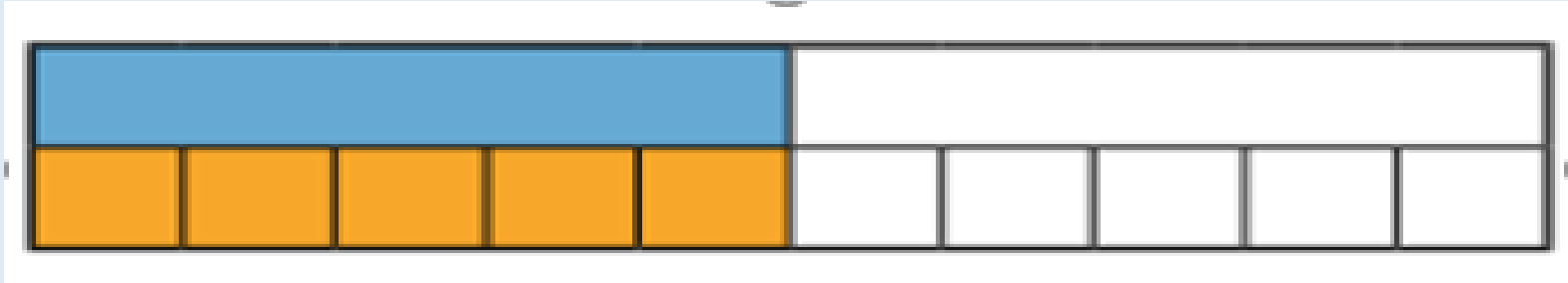


$$= \frac{19}{8}$$

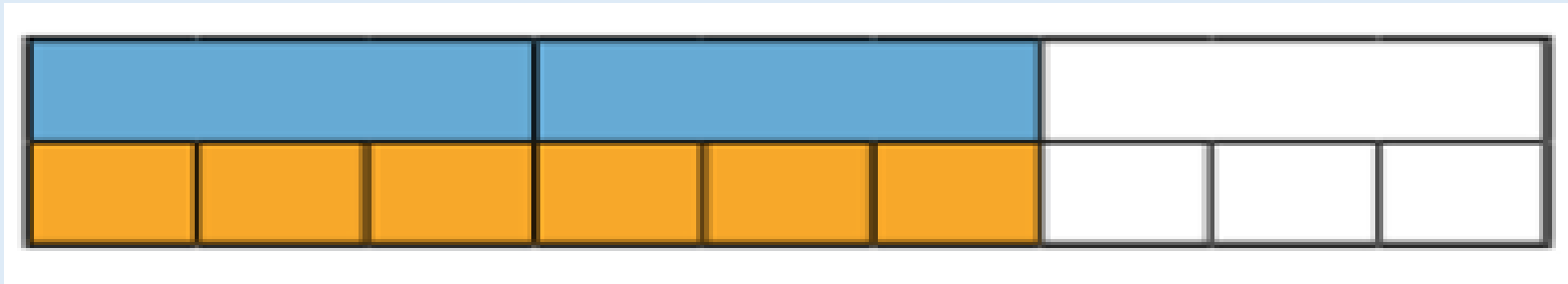
Abstract version: to change $3 \frac{5}{6}$ into an improper fraction we multiply

the denominator by the whole number and add the answer to the numerator. So $3 \times 6 = 18 + 5 = \frac{23}{6}$

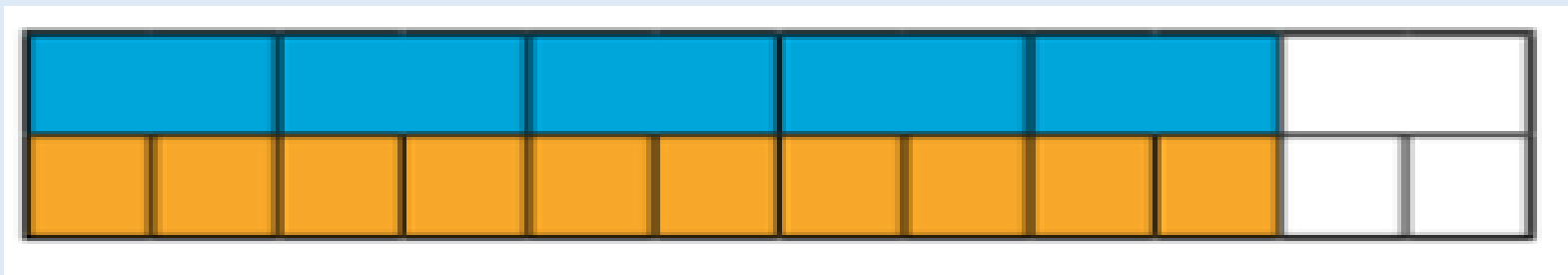
Equivalent fractions: pictorial



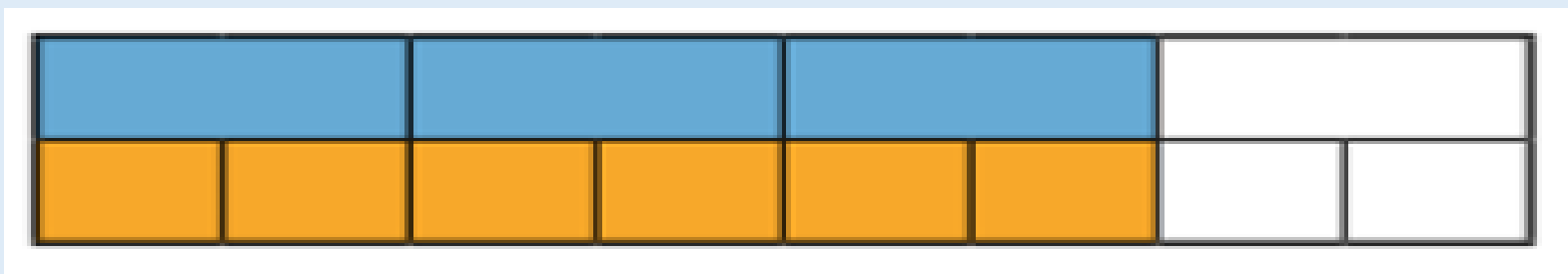
$$\frac{1}{2} = \frac{5}{10}$$



$$\frac{2}{3} = \frac{6}{9}$$



$$\frac{5}{6} = \frac{10}{12}$$



$$\frac{3}{4} = \frac{6}{8}$$

Abstract equivalent fractions

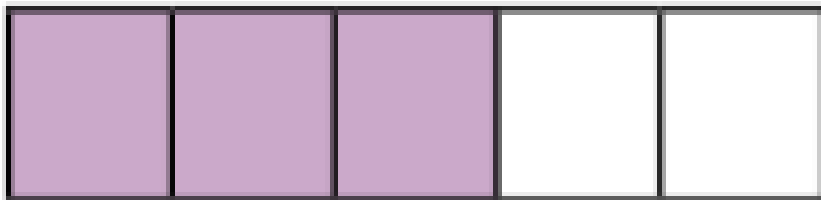
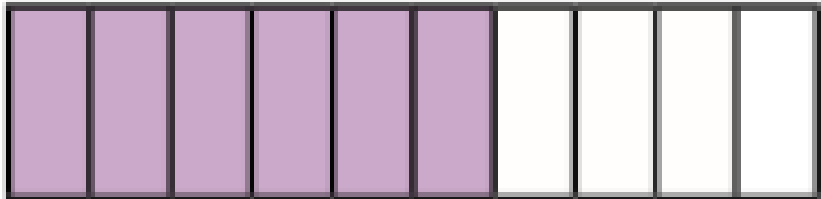
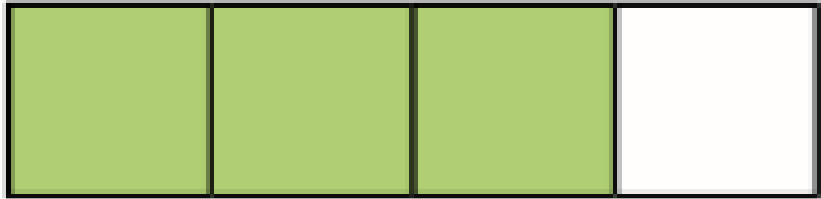
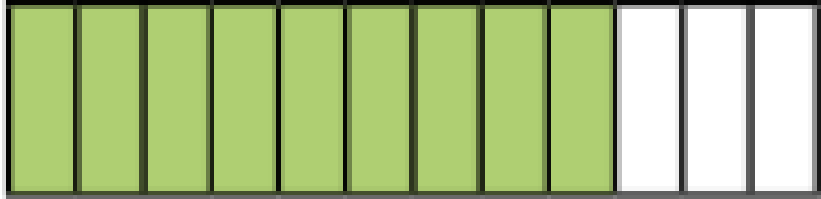
Finding equivalent fractions (Hint! Whatever you do to the numerator you must do to the denominator)

Equivalent fractions are fractions which have the same value. They are **equal**. You can make equivalent fractions by multiplying or dividing both the numerator and the denominator by the same amount. You only multiply and divide and never add or subtract to get equivalent fractions.

$$\begin{array}{ccc} & (\times 2) & \\ \underline{1} & = & \underline{2} \\ 2 & (\times 2) & 4 \end{array} \quad \begin{array}{ccc} & (\times 2) & \\ & = & \underline{4} \\ & (\times 2) & 8 \end{array} \quad \text{OR} \quad \begin{array}{ccc} & (\div 3) & \\ \underline{18} & = & \underline{6} \\ 36 & (\div 3) & 12 \end{array} \quad \begin{array}{ccc} & (\div 6) & \\ & = & \underline{1} \\ & (\div 6) & 2 \end{array}$$

Simplifying fractions: pictorial

Simplifying fractions means to make the fraction as simple as possible.



$$\frac{9}{12} = \frac{3}{4}$$

$$\frac{6}{10} = \frac{3}{5}$$

Simplifying fractions: abstract

Divide the numerator and denominator by the highest common factor. This is the largest number that will go exactly into the numerator and denominator.

E.g. The highest common factor of 16 and 24 is 8, so we divide both the numerator and denominator by 8.

8

$$\frac{16}{24} \div 8 = \frac{2}{3}$$

$$\frac{18}{27} \div 9 = \frac{2}{3}$$

Ordering fractions

To order fractions, we find the lowest common denominator

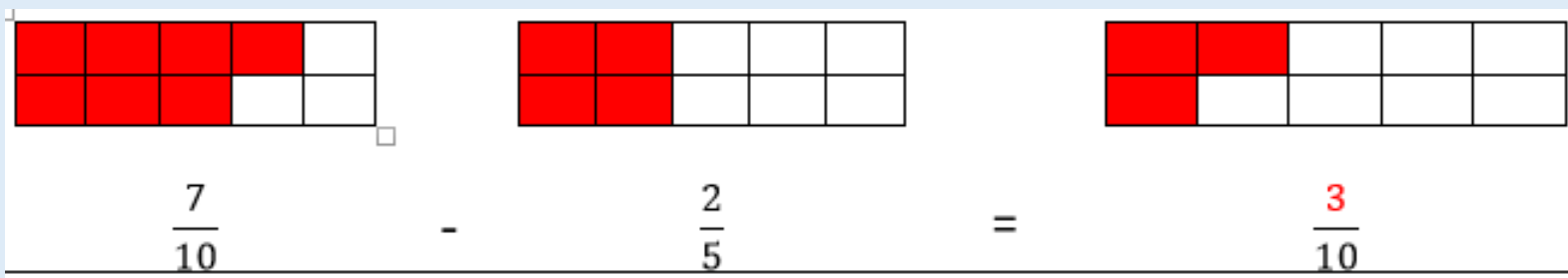
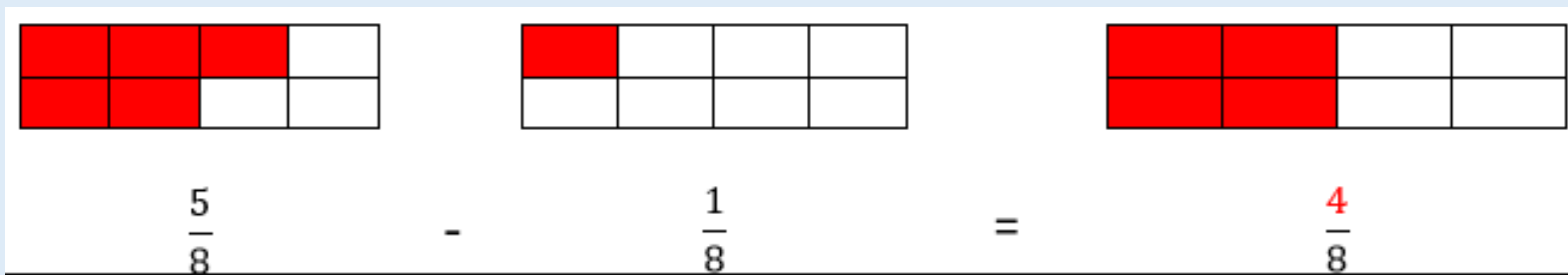
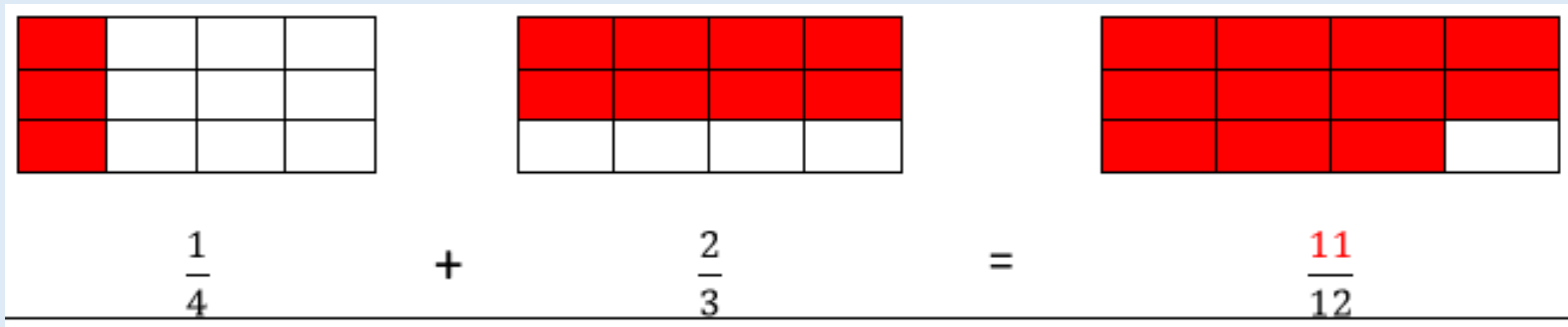
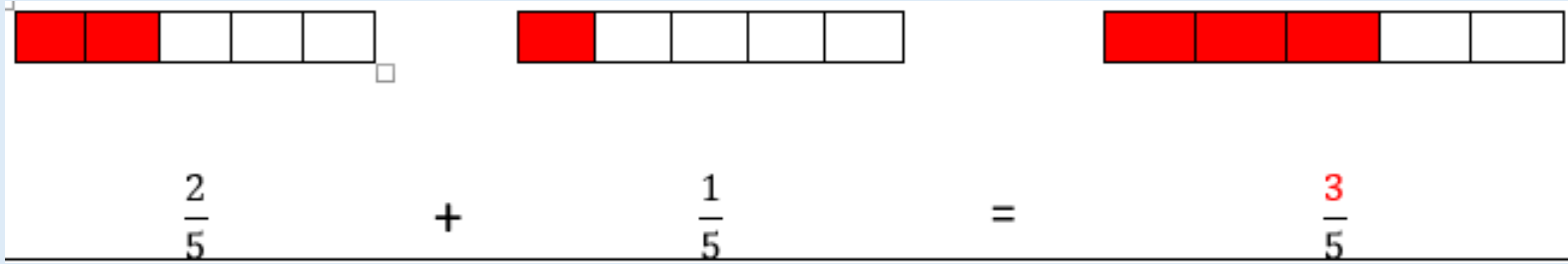
$$\frac{5}{6} \quad \frac{3}{4} \quad \frac{2}{8} \quad \frac{1}{2}$$

24 is the lowest common denominator so we change the fractions to have 24 as a denominator.

$$\begin{array}{cccc} \text{(x4)} & \text{(x6)} & \text{(x3)} & \text{(x12)} \\ \frac{5}{6} = \frac{20}{24} & \frac{3}{4} = \frac{18}{24} & \frac{2}{8} = \frac{6}{24} & \frac{1}{2} = \frac{12}{24} \\ \text{(x4)} & \text{(x6)} & \text{(x3)} & \text{(x12)} \end{array}$$

$$\frac{2}{8} \quad \frac{1}{2} \quad \frac{3}{4} \quad \frac{5}{6} \quad \text{and NOT} \quad \frac{6}{24} \quad \frac{12}{24} \quad \frac{18}{24} \quad \frac{20}{24}$$

Adding and subtracting fractions pictorial



Adding fractions

Hint: Remember we do not add the denominators together as they are all the same value. We are just adding the numerators (all the parts that we have) together.

$$\frac{1}{6} + \frac{3}{4} + \frac{1}{3}$$

We find the lowest common denominator which would be 12, and change all the fractions to have 12 as the denominator.

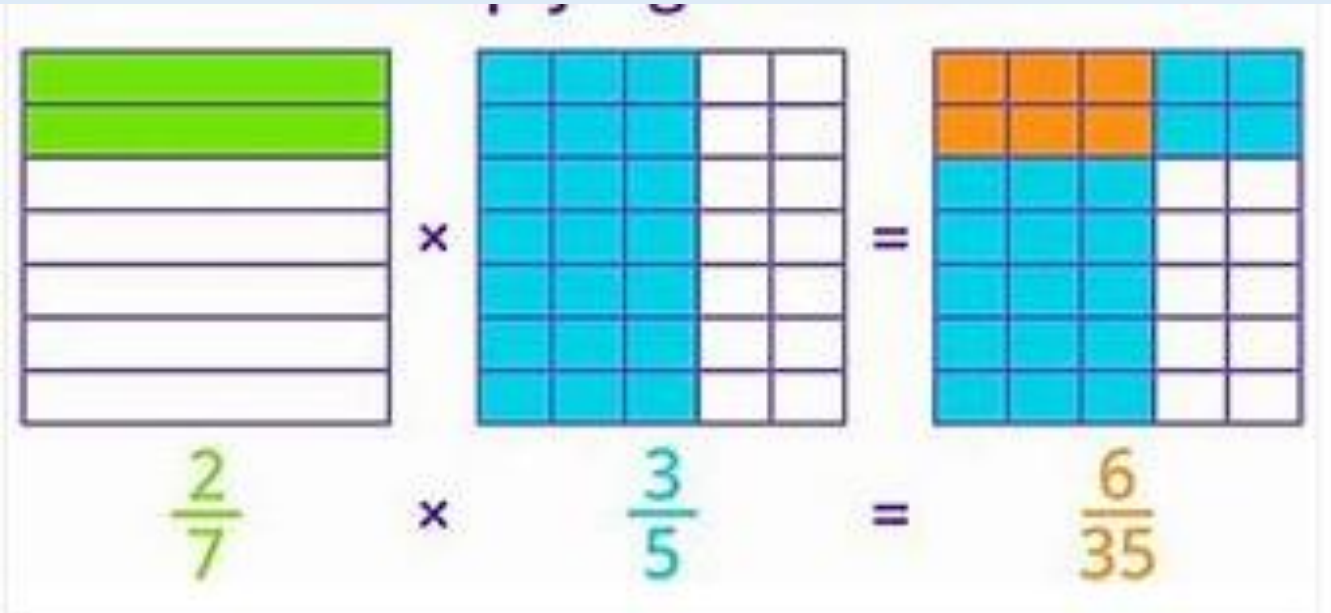
$$\begin{array}{ccc} \overset{(x2)}{\underline{1}} = \underline{2} & \overset{(x3)}{\underline{3}} = \underline{9} & \overset{(x4)}{\underline{1}} = \underline{4} \\ \underset{(x2)}{6} \quad 12 & \underset{(x3)}{4} \quad 12 & \underset{(x4)}{3} \quad 12 \end{array}$$

Now we can add the fractions because the denominators the same.

$$\frac{2}{12} + \frac{9}{12} + \frac{4}{12} =$$

Multiplying fractions

Pictorial



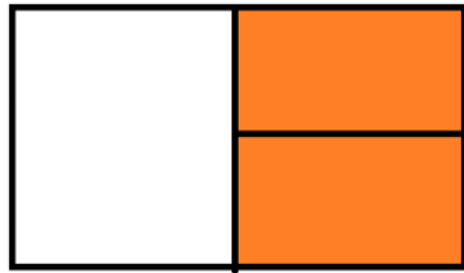
Abstract

Multiply both numerators $\frac{3}{5} \times \frac{7}{8}$

Multiply both denominators $\frac{3}{5} \times \frac{7}{8}$

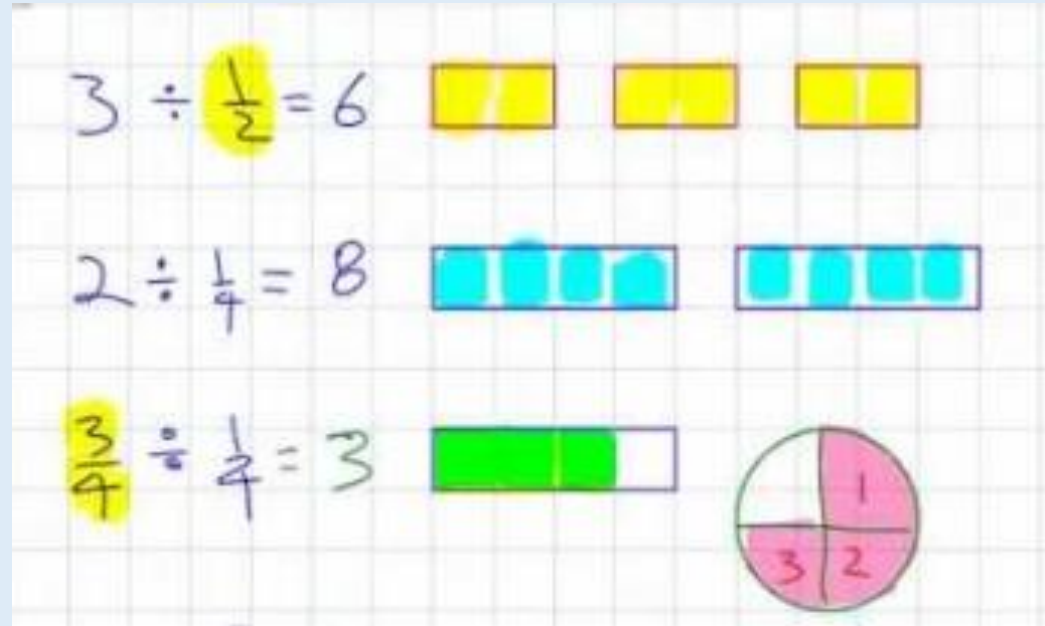
Dividing fractions

Pictorial



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

Think 'how many quarters are there in a half?' = 2



Abstract

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

$$\frac{3}{4} \div \frac{1}{4} = \frac{3}{4} \times \frac{4}{1} = \frac{12}{4} = 3$$

*Dividing fractions is as easy as pie,
Just flip the second fraction and multiply.*

As we know fractions and decimals are all closely linked and can be converted (changed) to be each other. So, a fraction can be converted into a percentage and a decimal. A percentage can be converted into a fraction, or a decimal can be converted into a percentage or fraction.

Facts that children just need to learn

<u>Fraction</u>	<u>Decimal</u>	<u>Percentage</u>
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%
$\frac{1}{5}$	0.2	20%
$\frac{1}{10}$	0.1	10%

Converting fractions to decimals

Place value knowledge is used to help children convert.

$$\frac{28}{100}$$

$$\frac{4}{10} \times 10 = \frac{40}{100}$$

T	O	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
	0	.	2	8	
	0	.	4	0	

Converting a decimal into a fraction

To convert a decimal you have to again use place value to help you.

	0	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$	
0.8	0	.	8			= $\frac{8}{10}$
0.85	0	.	8	5		= $\frac{85}{100} \xrightarrow{/5} \frac{17}{20}$
0.848	0	.	8	4	8	$\frac{848}{1000} \xrightarrow{/8} \frac{106}{125}$

The number goes into the 10ths column then the answer is going to be that number over 10.

If the numbers in the decimal goes up to the 100ths column then the answer is going to be that number over 100.

If the number in the decimal goes up to the 1000ths column then the number is over 1000.

Converting a percentage into a decimal

To convert a percentage to a decimal you divide a percentage by 100.

$$\text{E.g.: } 68\% = 68 / 100 = 0.68$$

Converting a percentage into a fraction

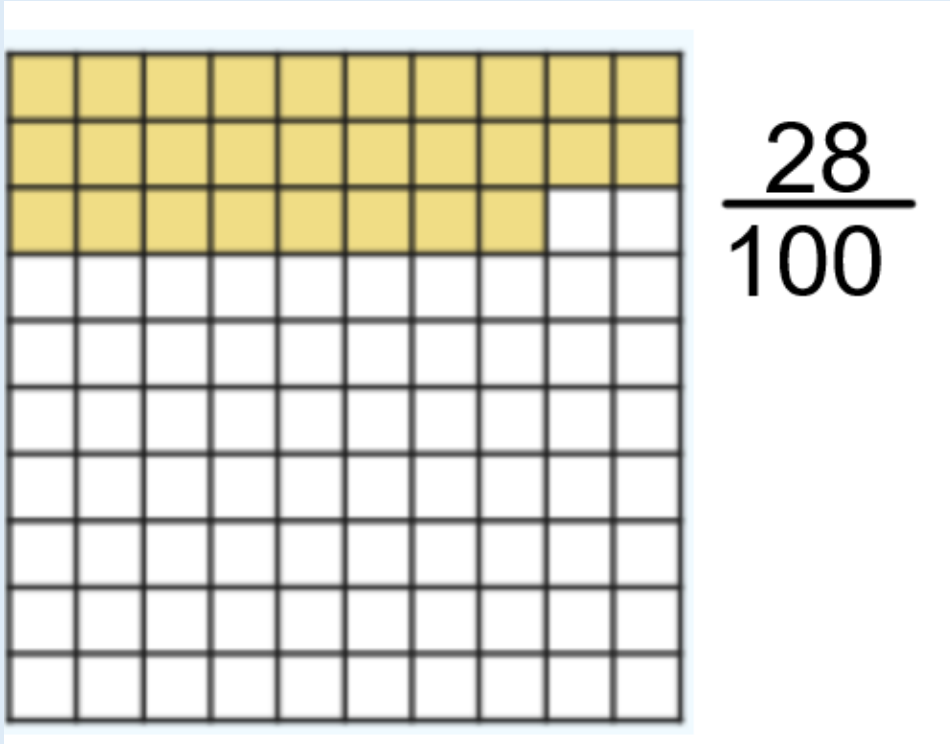
To convert a percentage into a fraction, you put the number over 100 (as it is that amount out of 100) and then simplify the fraction if you can.

$$0.8 = \frac{80}{100} \quad \text{or} \quad \frac{8}{10} \quad \text{or} \quad \frac{4}{5}$$

Converting a fraction to a percentage and decimal: pictorial

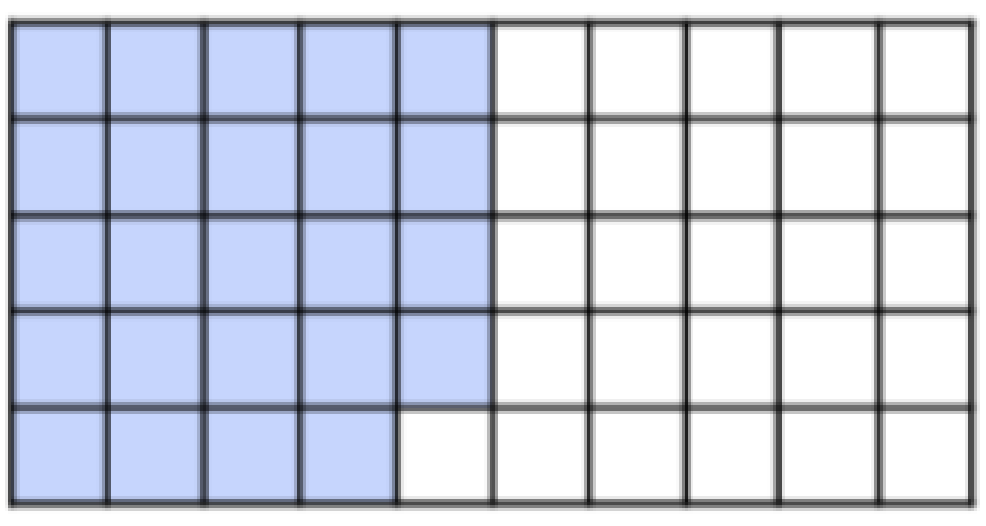
A percentage is part of 100

28%

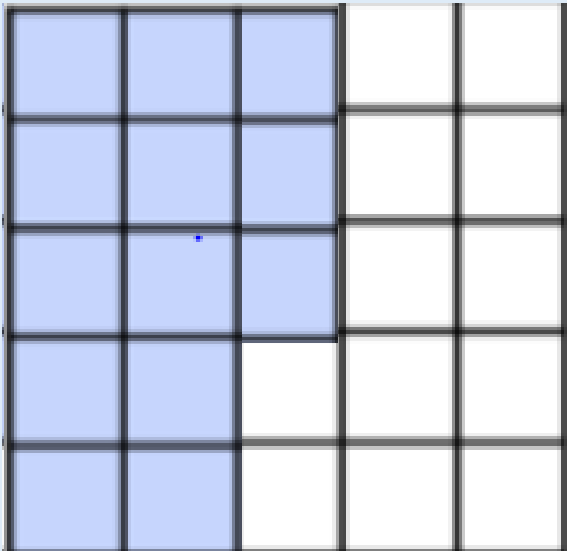


T	O	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
	0	.	2	8	
		.			

Fractions to percentages



$$\frac{24}{50} = \frac{48}{100} = 48\%$$



$$\frac{13}{25} = \frac{52}{100} = 52\%$$

Converting a decimal into a percentage

To convert a decimal into a percentage you multiply the number and that is the percentage.

$$\text{E.g.: } 0.32 = 0.32 \times 100 = 32 = 32\%$$

You can also have an example like this: $0.625 = 0.625 \times 100 = 62.5 = 62.5 \%$

Converting a percentage into a decimal

To convert a percentage to a decimal you divide the percentage by 100.

$$\text{E.g.: } 68\% = 68 / 100 = 0.68$$

End of KS2 SATs

- ✓ At the end of KS2 (Year 6) children will take their end of KS2 SATs.
- ✓ This is done in school, the papers are administered at the same time across the country.
- ✓ The children are expected to complete 2 Reading papers, 3 Maths papers and 2 English, Grammar, Punctuation and Spelling papers. These are spread out throughout the week.
- ✓ The Maths SATs consist of an arithmetic paper and 2 reasoning papers.
- ✓ The Arithmetic paper contains 36 questions. Children will have 30 minutes to complete.
- ✓ The Reasoning paper 1 consists of 23 and Reasoning paper 2 consists of 21 questions. The children will have 40 minutes to complete this.
- ✓ Monday 11th May – English, Grammar, Punctuation and Spelling, papers 1 and 2.
- ✓ Tuesday 12th May – English Reading
- ✓ Wednesday 13th May – Maths Papers 1 and 2 (Arithmetic and Reasoning)
- ✓ Thursday 14th May- Maths Paper 3 (Reasoning)
- ✓ Results are released in July.