

Parent Forum Maths Meeting

Monday 25th April 2016

Fractions

Equivalent fractions – Simplifying fractions

Adding / Subtracting fractions

Multiplying with fractions

Dividing with fractions

Fractions of amounts

Parent Forum Maths Meeting

Fractions

How do we teach the topics?

Have a go.....

Can you spot the errors?

The anatomy of a fraction.....

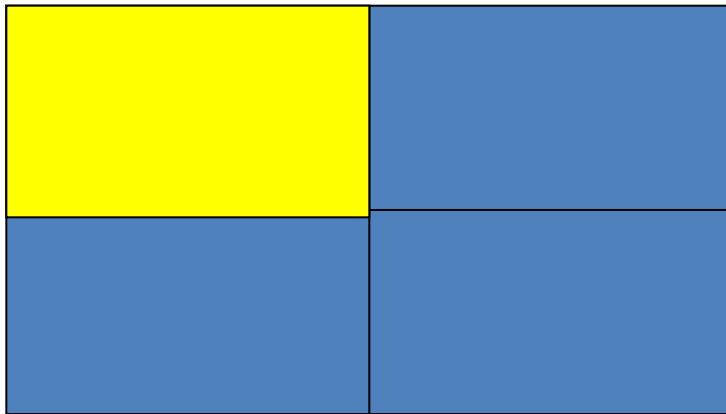
$$\frac{1}{5}$$

Numerator

Denominator

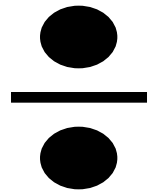
Writing fractions and what they mean...

A fraction can be used to demonstrate the proportion of a shape that is shaded and the proportion that is not.



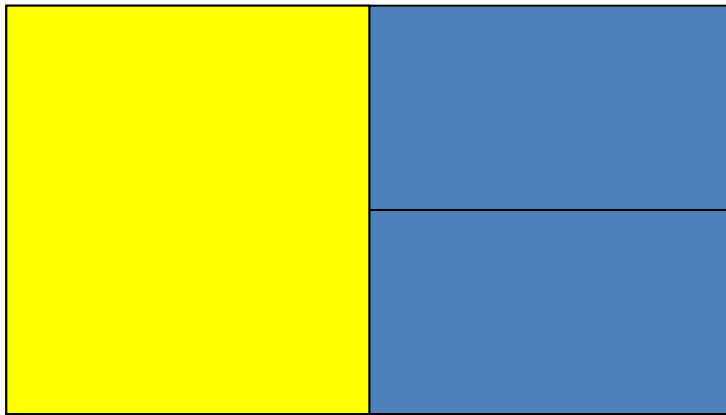
$$\frac{1}{4}$$

Fractions can also be seen as a division



Writing fractions and what they mean...

A fraction can be used to demonstrate the proportion of a shape that is shaded and the proportion that is not.



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

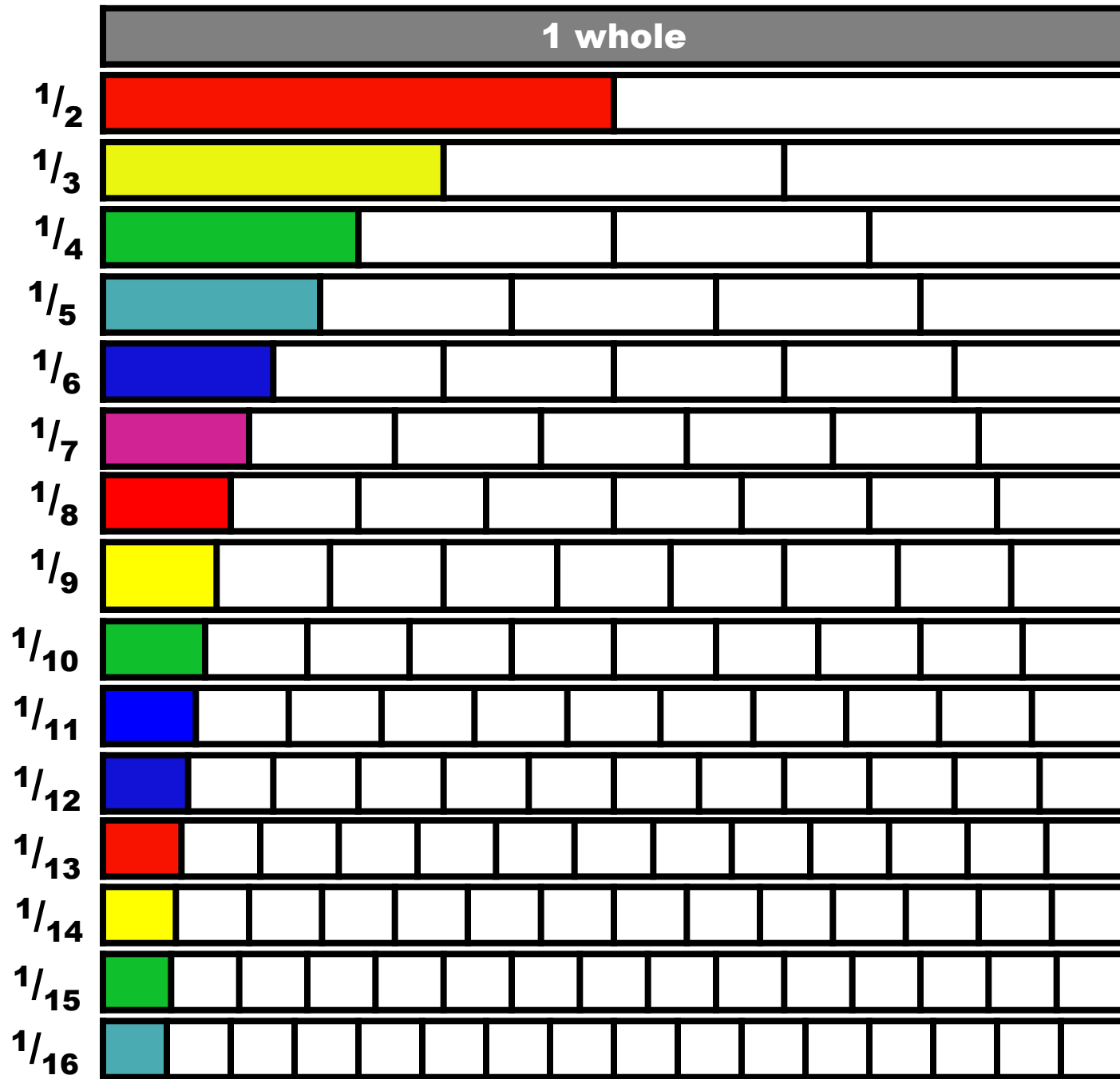
This does
not leave

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

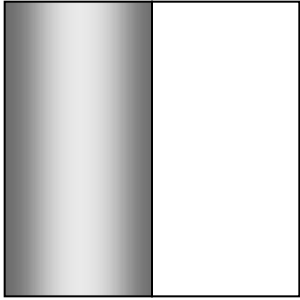
Equivalent fractions

Equivalent = the same

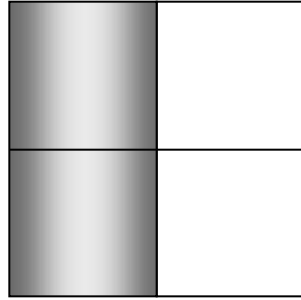
$$\frac{1}{2} \begin{array}{c} \xrightarrow{\text{x2}} \\ = \\ \xrightarrow{\text{x2}} \end{array} \frac{2}{4} \begin{array}{c} \xrightarrow{\text{x2}} \\ = \\ \xrightarrow{\text{x2}} \end{array} \frac{4}{8} \begin{array}{c} \xrightarrow{\text{x2}} \\ = \\ \xrightarrow{\text{x2}} \end{array} \frac{8}{16}$$



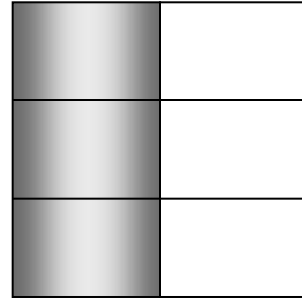
Halves



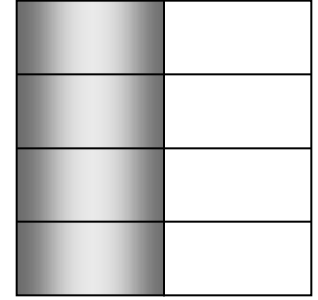
$$\frac{1}{2}$$



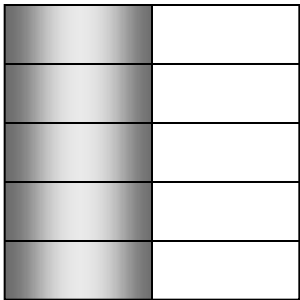
$$\frac{2}{4}$$



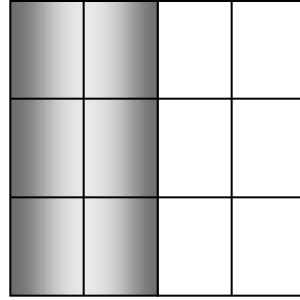
$$\frac{3}{6}$$



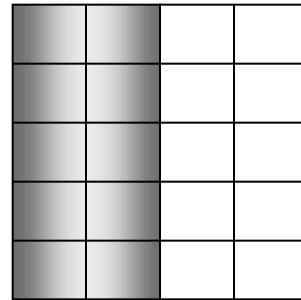
$$\frac{4}{8}$$



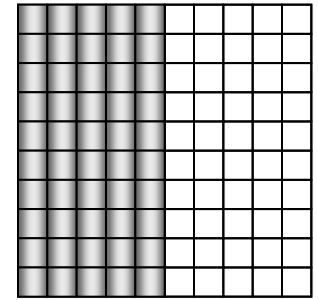
$$\frac{5}{10}$$



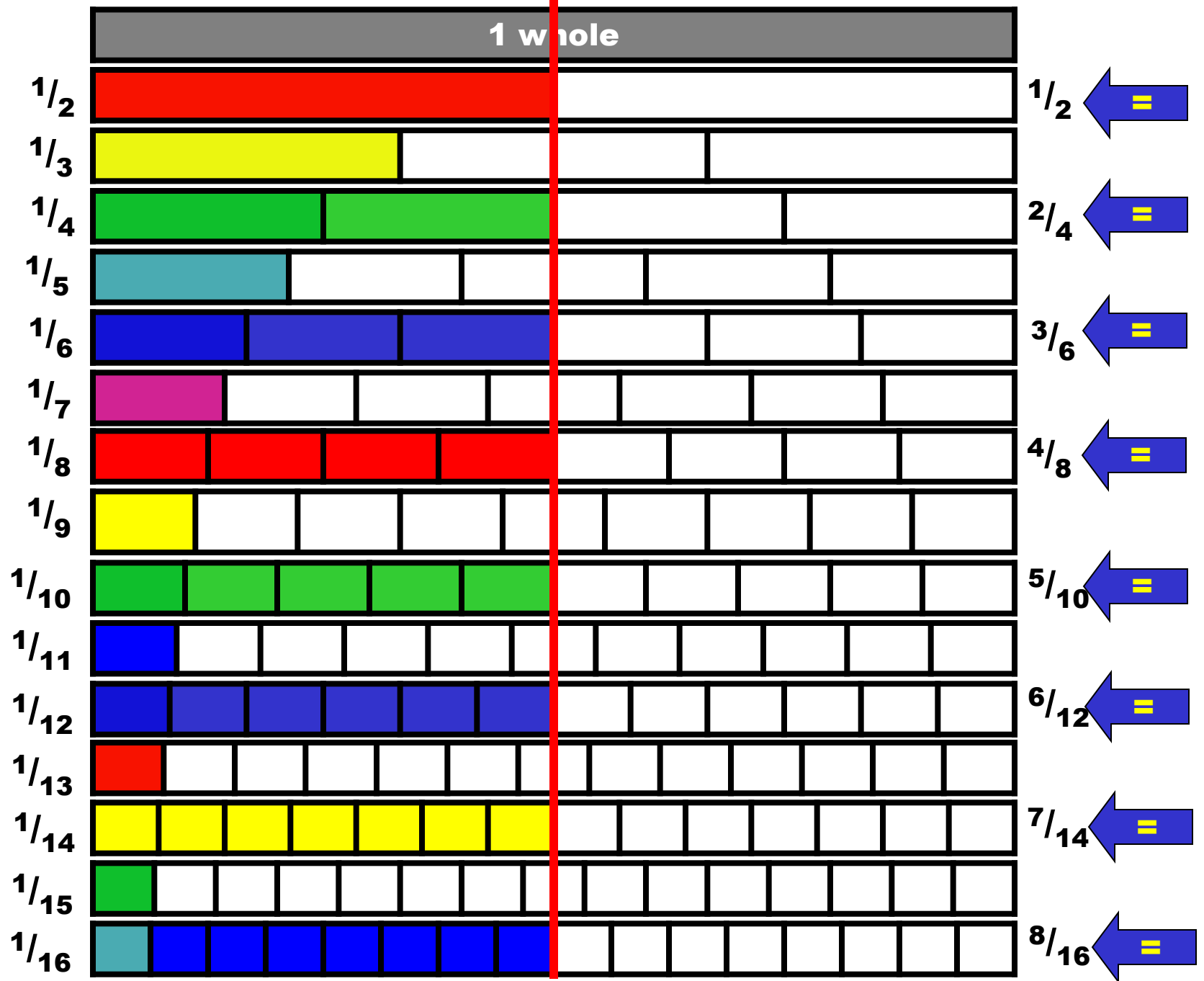
$$\frac{6}{12}$$



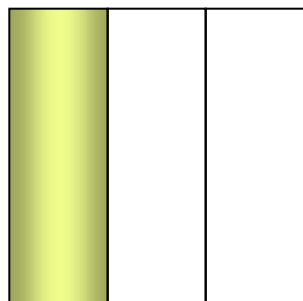
$$\frac{10}{20}$$



$$\frac{50}{100}$$

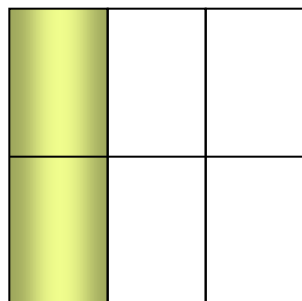


Thirds



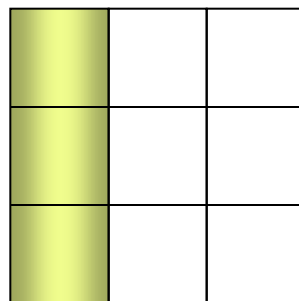
$$\frac{1}{3}$$

$$\frac{2}{3}$$



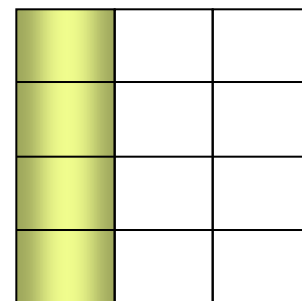
$$\frac{2}{6}$$

$$\frac{4}{6}$$



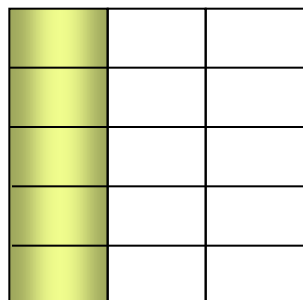
$$\frac{3}{9}$$

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



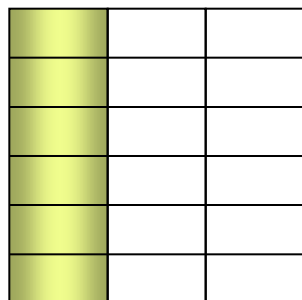
$$\frac{4}{12}$$

$$\frac{8}{12}$$



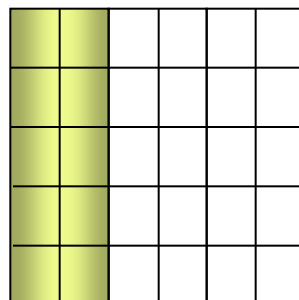
$$\frac{5}{15}$$

$$\frac{10}{15}$$



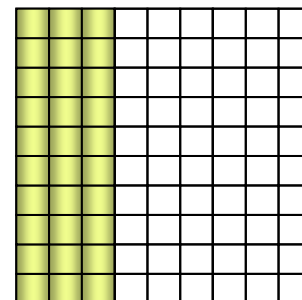
$$\frac{6}{18}$$

$$\frac{12}{18}$$



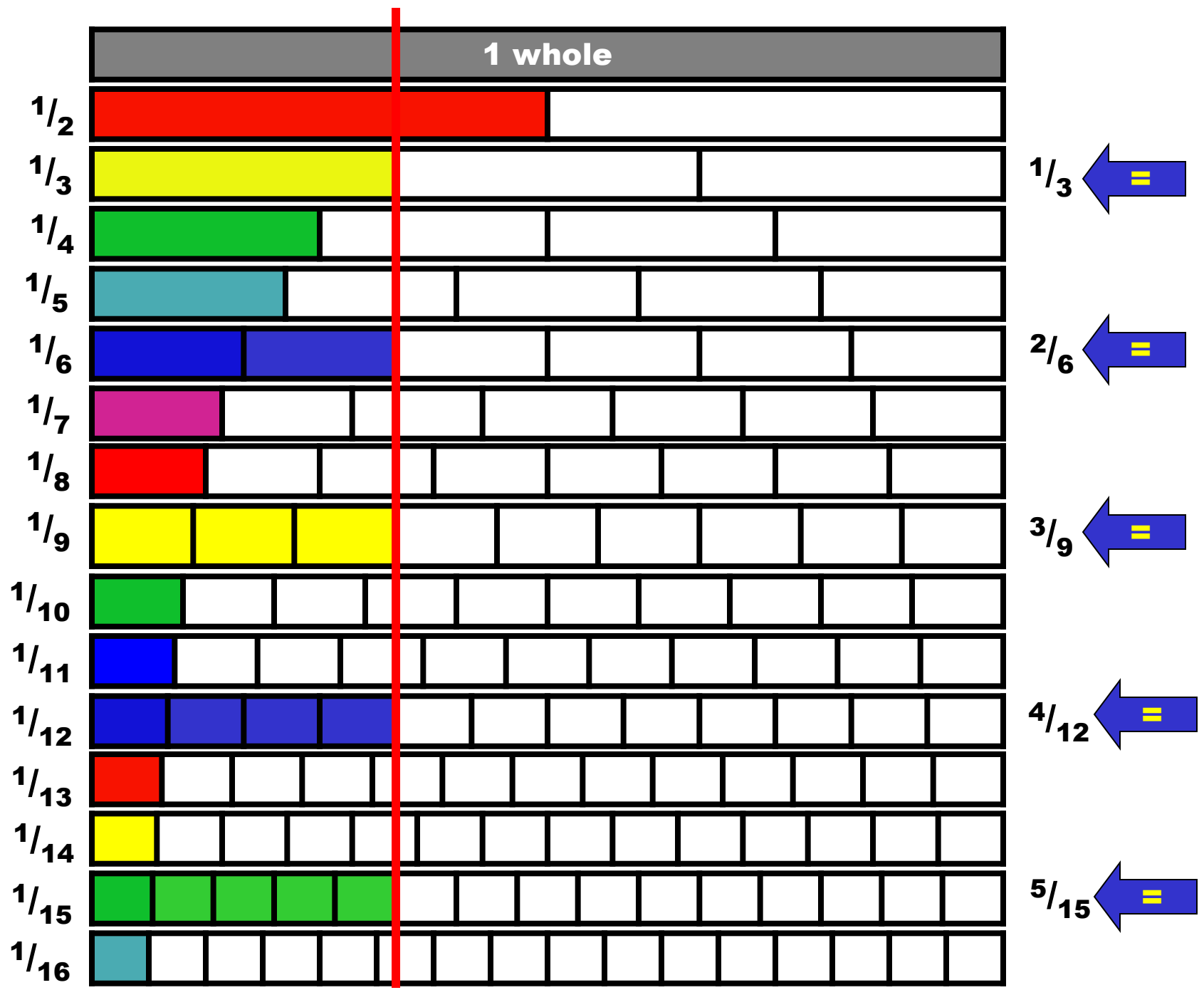
$$\frac{10}{30}$$

$$\frac{20}{30}$$



$$\frac{30}{90}$$

$$\frac{60}{90}$$



Equivalent fractions

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

Equivalent fractions

Use the timestable strips to help identify equivalent fractions - halves

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20

Equivalent fractions

Use the timestable strips to help identify equivalent fractions - fifths

1	2	3	4	5	6	7	8	9	10
5	10	15	20	25	30	35	40	45	50

Equivalent fractions

What about the equivalent fractions
for $\frac{5}{9}$

5	10	15	20	25	30	35	40	45	50
9	18	27	36	45	54	63	72	81	90

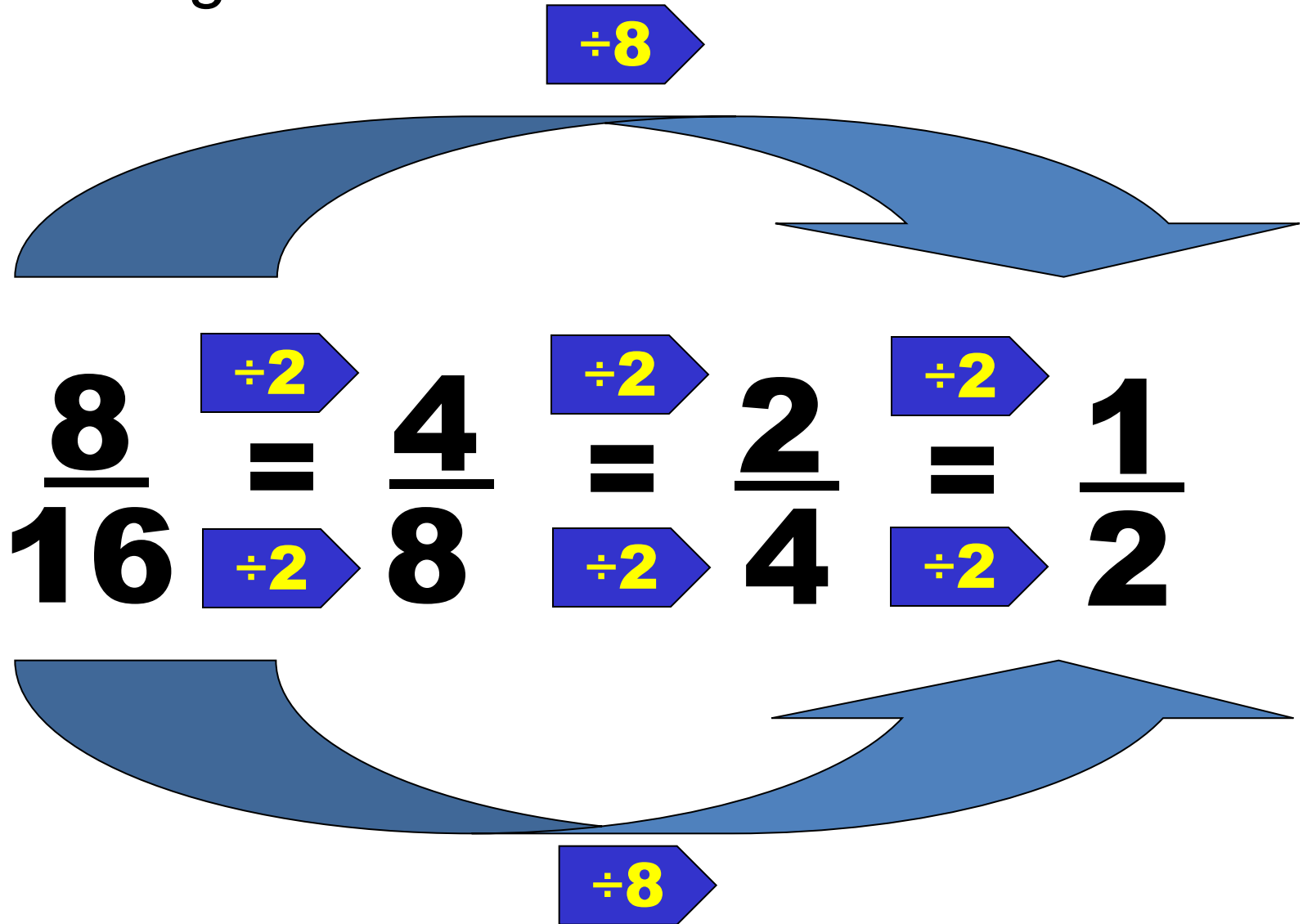
Simplifying fractions

- Get a fraction into its lowest form.....
- This can sometimes be seen as the opposite to finding equivalent (where we typically multiply).
- Division is the calculation to be used.....

$$\frac{8}{16} \xrightarrow{\div 2} \frac{4}{8} \xrightarrow{\div 2} \frac{2}{4} \xrightarrow{\div 2} \frac{1}{2}$$

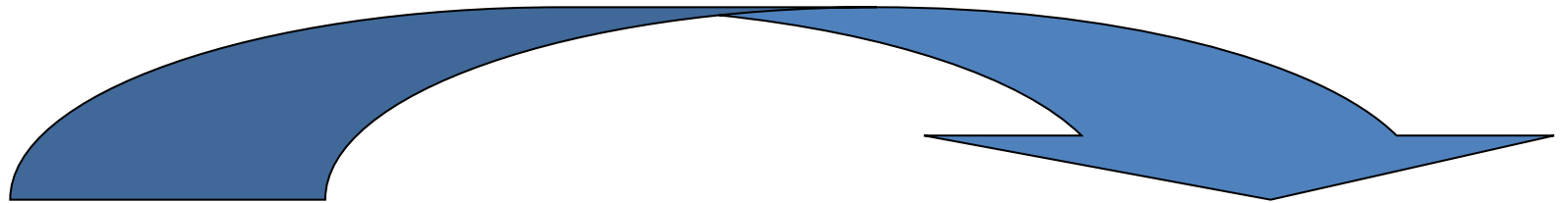
Simplifying fractions

- You can go direct.....



Simplifying fractions

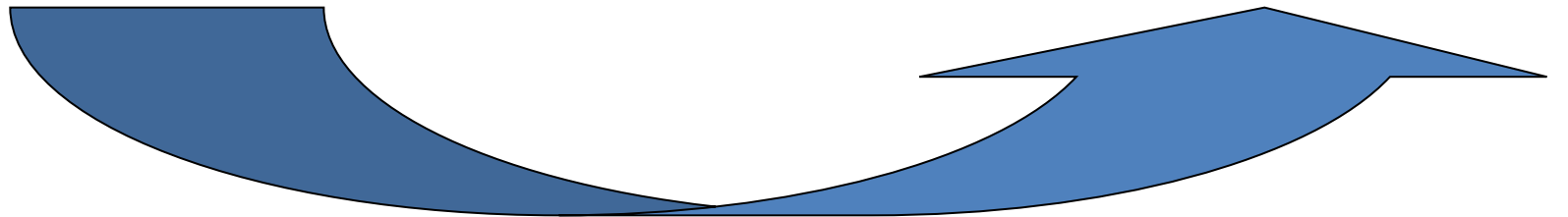
- A bit more thinking needed.....



$$\frac{6}{27}$$

=

$$\frac{2}{9}$$



Your turn.....

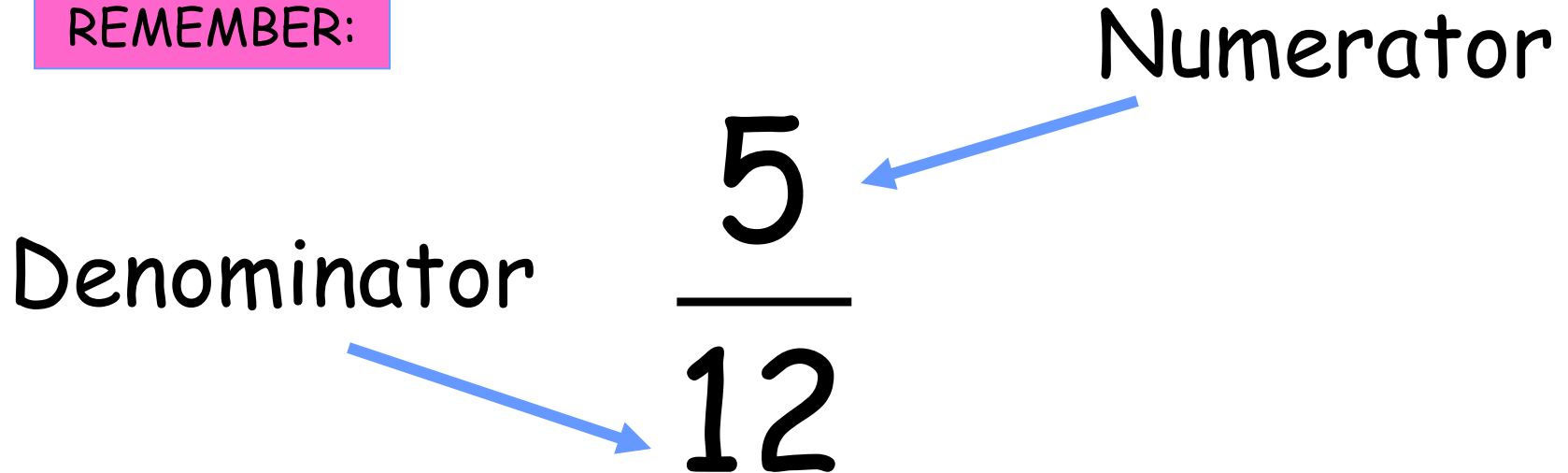
Addition/Subtraction of Fractions

REMEMBER:

Numerator

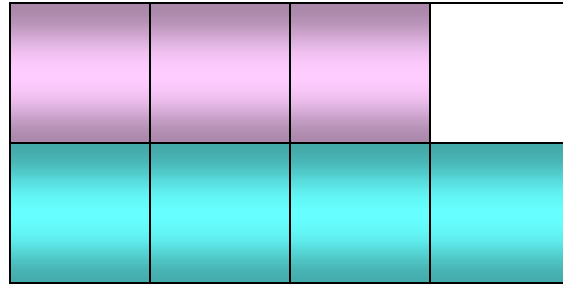
$$\frac{5}{12}$$

Denominator

A diagram showing the fraction 5/12. The number 5 is above a horizontal line, and the number 12 is below it. A blue arrow points from the word 'Numerator' to the number 5. Another blue arrow points from the word 'Denominator' to the number 12.

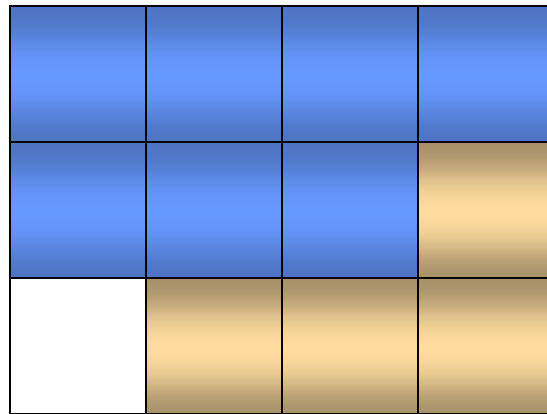
Adding/subtracting fractions with the same denominator is easy. You simply add/subtract the **numerators**.

$$\frac{3}{8} + \frac{4}{8}$$



$$= \frac{7}{8}$$

$$\frac{7}{12} + \frac{4}{12}$$



$$= \frac{11}{12}$$

Adding/subtracting fractions with different denominators is more complicated. You need to find the Lowest Common Multiple (LCM) of the denominators first.

Remember: The Lowest Common Multiple of 2 or more numbers is the smallest number that the given numbers will divide into without remainder.

Find the lowest common multiple of the following numbers:

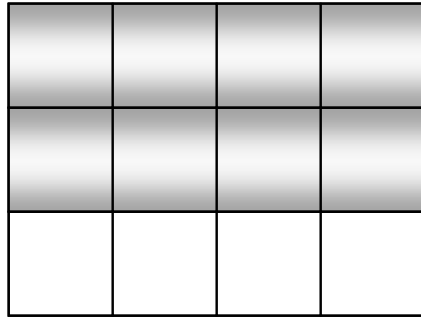
3 and 4	
Multiples of 3 and 4	
3	4
6	8
9	12
12	16
15	20
12 is the LCM	

5 and 20	
Multiples of 5 and 20	
5	20
10	40
15	60
20	80
25	100
20 is the LCM	

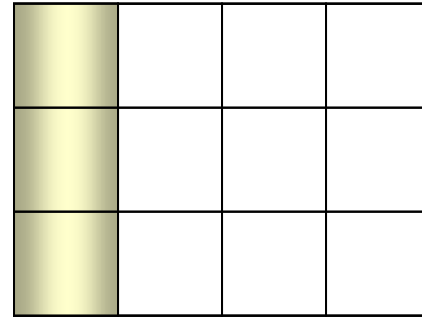
3 and 8

Multiples of 3 and 8	
3	8
6	16
9	24
12	32
15	40
18	48
21	56
24	64
24 is the LCM	

$$\frac{2}{3}$$



+



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

Equivalent

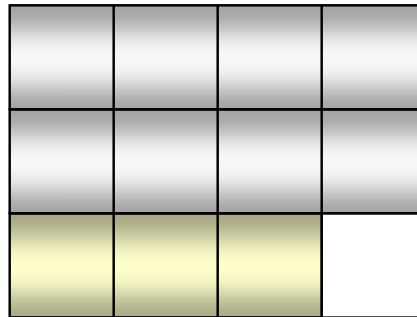
$$\frac{8}{12}$$

+

$$\frac{3}{12}$$

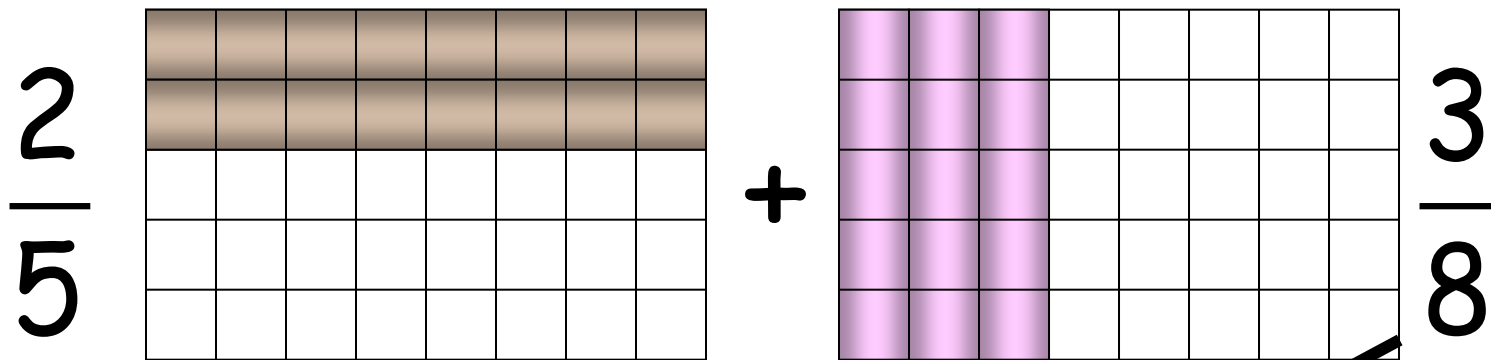
Equivalent

=



$$\frac{11}{12}$$

Multiples of 3 and 4	
3	4
6	8
9	12
12	16
15	20
12 is the LCM	



Equivalent

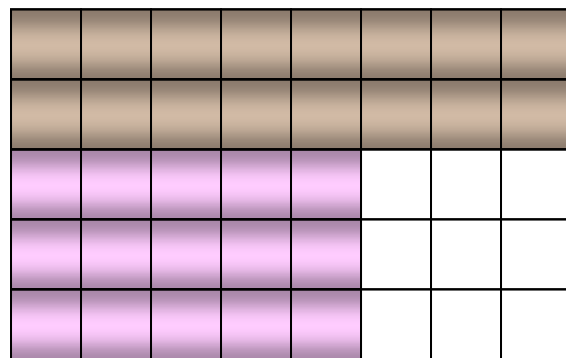
$$\frac{16}{40}$$

+

$$\frac{15}{40}$$

Equivalent

=



$$\frac{31}{40}$$

Multiples of 5 and 8	
5	8
5	8
10	16
15	32
20	40
25	48
30	56
35	64
40	72
40 is the LCM	

An alternative approach....

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

Multiply the denominators together to get a common value. Then make the fractions equivalent

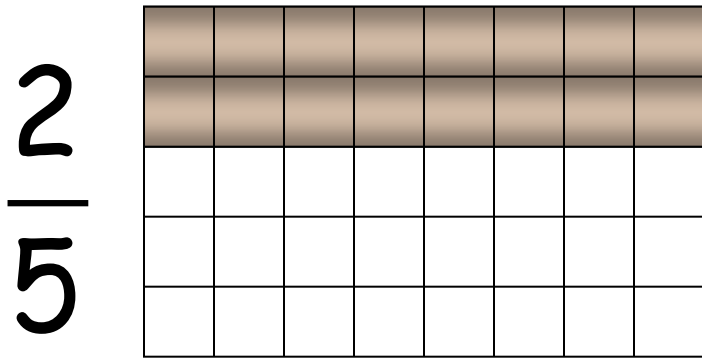
$$\frac{2}{8} + \frac{4}{8} = \frac{6}{8} = \frac{3}{4}$$

Example questions

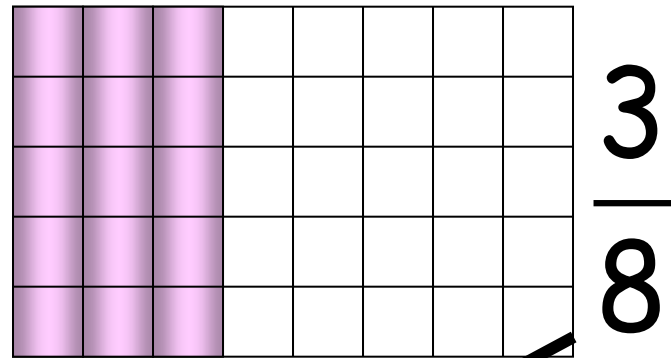
$$1 \quad \frac{5}{8} + \frac{1}{3} = \frac{15 + 8}{24} = \frac{23}{24}$$

$$2 \quad \frac{2}{5} + \frac{1}{4} = \frac{8 + 5}{20} = \frac{13}{20}$$

$$3 \quad \frac{1}{12} + \frac{3}{4} = \frac{4 + 36}{48} = \frac{40}{48} = \frac{5}{6}$$



-



Equivalent

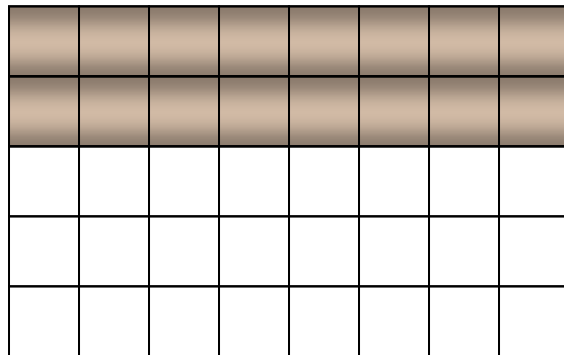
$$\frac{16}{40}$$

-

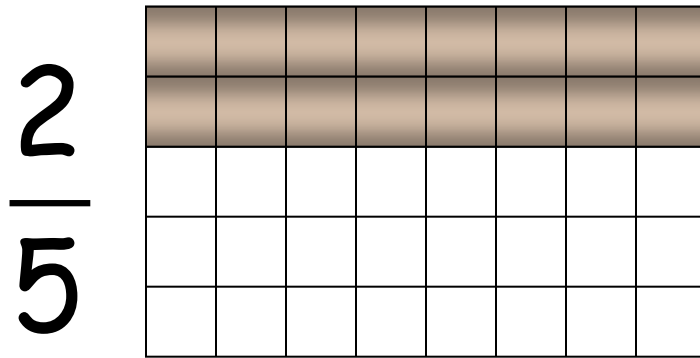
$$\frac{15}{40}$$

Equivalent

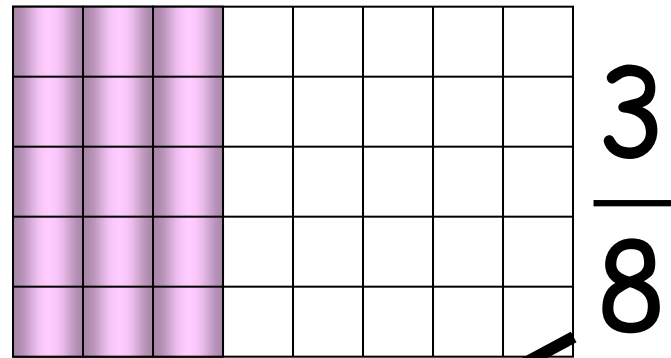
=



Multiples of 5 and 8	
5	8
10	16
15	32
20	40
25	48
30	56
35	64
40	72
40 is the LCM	



-



Equivalent

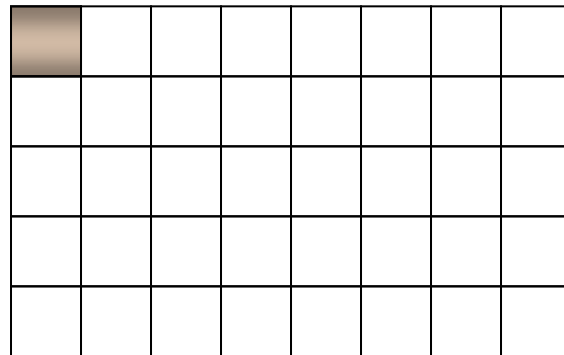
$$\frac{16}{40}$$

-

$$\frac{15}{40}$$

Equivalent

=



$$\frac{1}{40}$$

Multiples of 5 and 8	
5	8
5	8
10	16
15	32
20	40
25	48
30	56
35	64
40	72
40 is the LCM	

Example questions

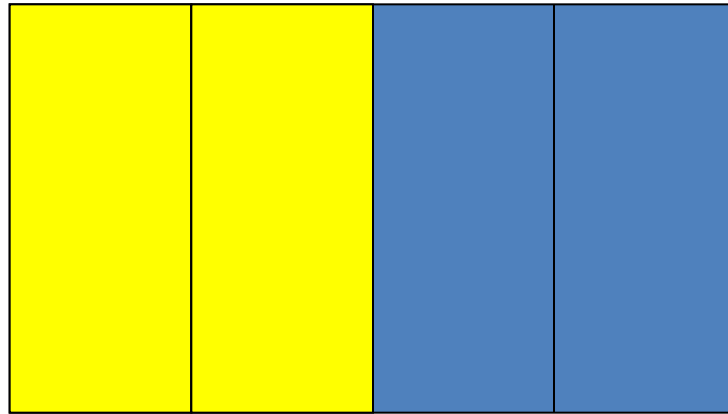
$$1 \quad \frac{5}{8} - \frac{1}{3} = \frac{15 - 8}{24} = \frac{7}{24}$$

$$2 \quad \frac{2}{5} - \frac{1}{4} = \frac{8 - 5}{20} = \frac{3}{20}$$

$$3 \quad \frac{3}{4} - \frac{1}{12} = \frac{36 - 4}{48} = \frac{32}{48} = \frac{2}{3}$$

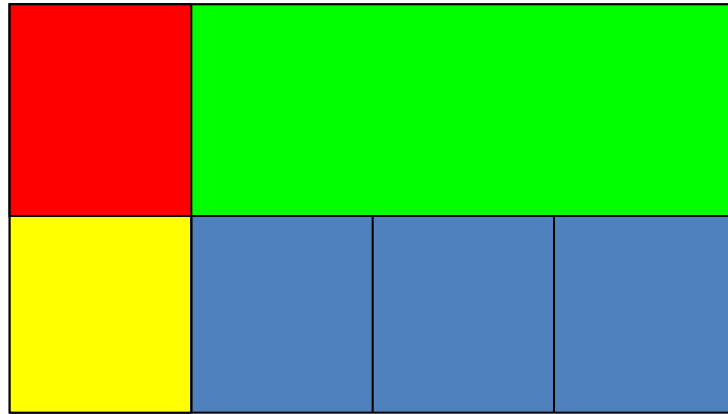
Your turn.....

Multiplying fractions with whole numbers



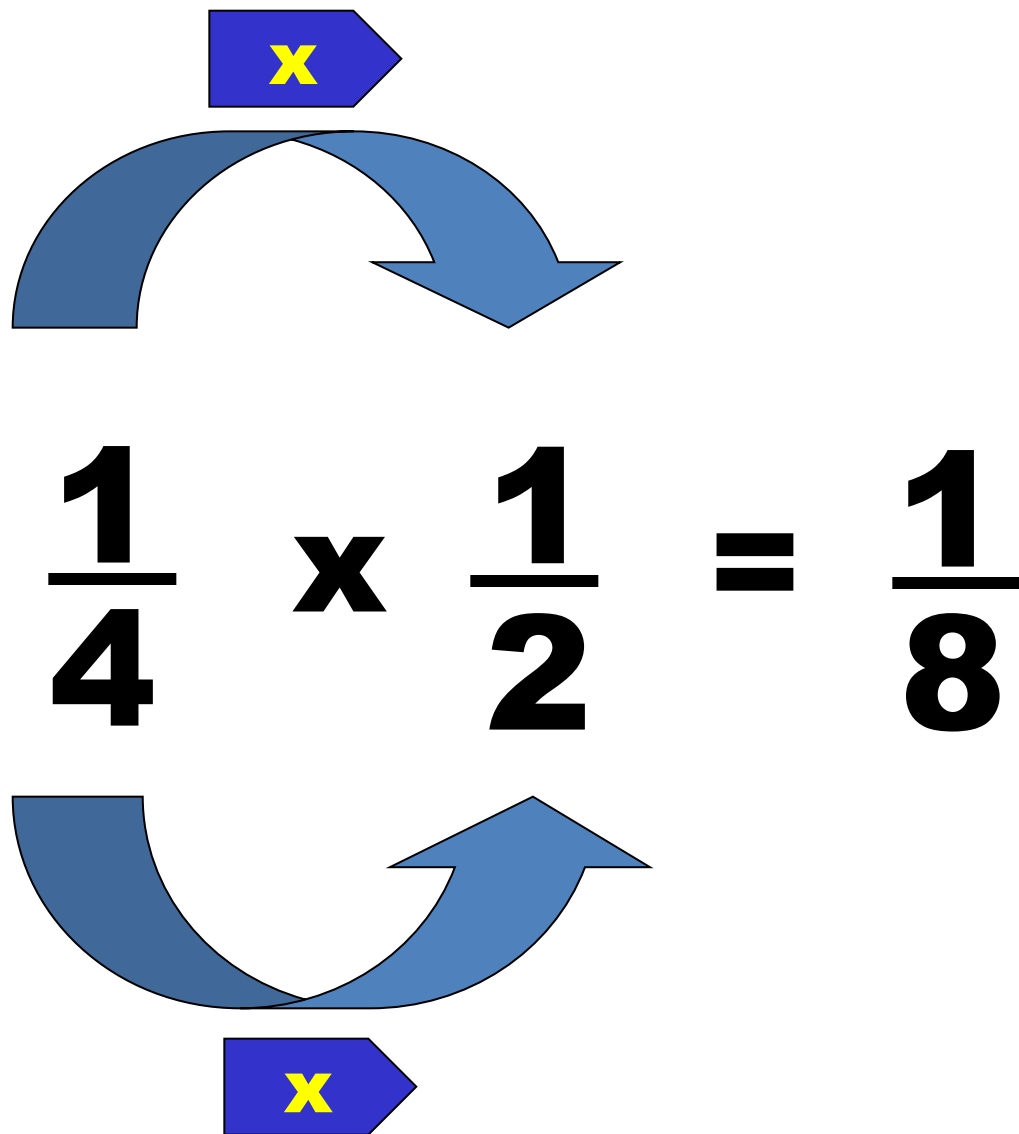
$$\frac{1}{4} \times 2 = \frac{1 \times 2}{4} = \frac{2}{4}$$

Multiplying with fractions

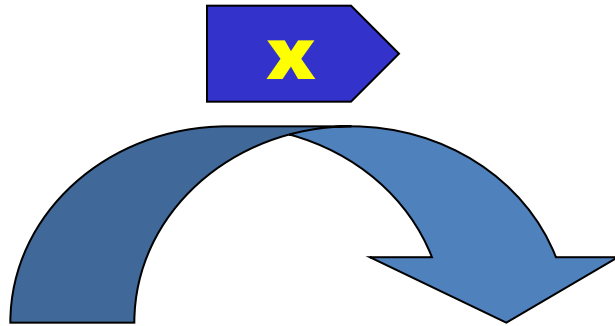


$$\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$$

Multiplying with fractions

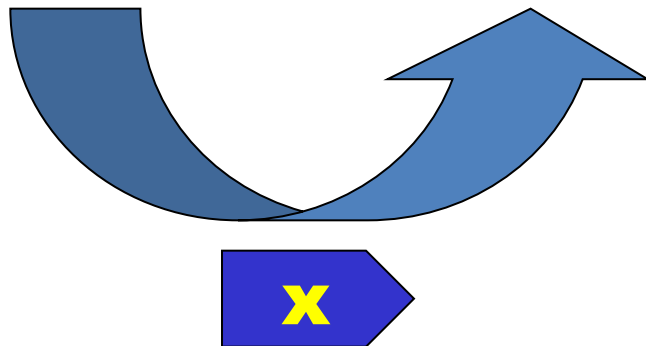

$$\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$$

Multiplying with fractions



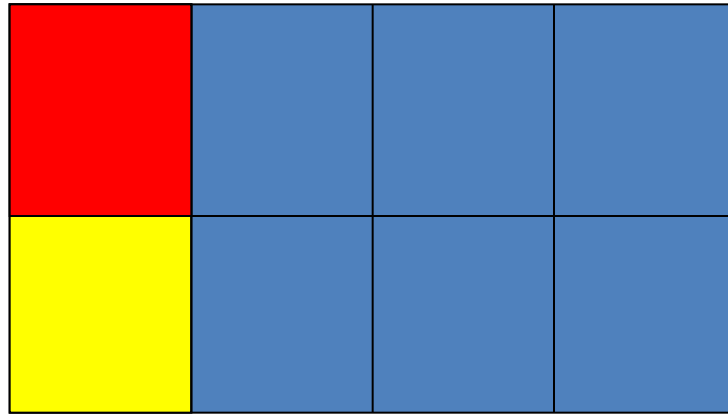
Simplify where possible

$$\frac{1}{3} \times \frac{3}{5} = \frac{3}{15} = \frac{1}{5}$$



Your turn.....

Dividing with fractions



$$\frac{1}{4} \div 2 = \frac{1}{8}$$

Dividing with fractions







$$\frac{1}{4} \div \frac{3}{5}$$

Change the second fraction around
and multiply instead of divide

$$\frac{1}{4} \times \frac{5}{3} = \frac{5}{12}$$

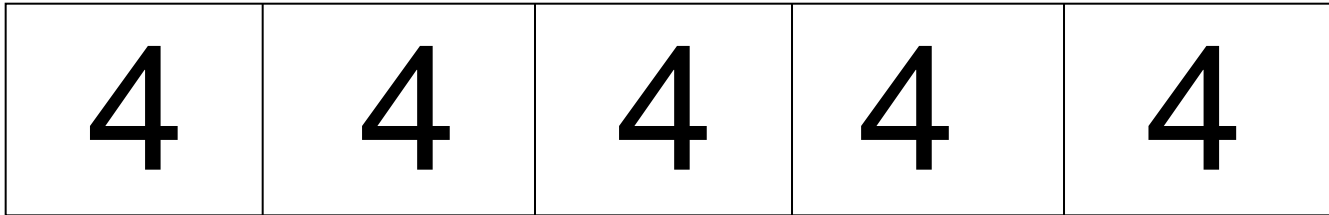
Your turn.....

Fractions of a quantity

- A fraction is just like a 
- To find $\frac{1}{2}$ of a number divide by 
- To find a $\frac{1}{3}$ of a number divide by 
- To find a $\frac{1}{4}$ of a number divide by 
- To find a $\frac{1}{5}$ of a number divide by 
- To find a $\frac{1}{10}$ of a number divide by 

Fractions of a quantity

Calculate $\frac{3}{5}$ of £20



Split 20 into 5 equal parts ($20 \div 5$)

So each part ($\frac{1}{5}$) is equal to £4

Multiply 4 by 3 (equals £12)

Your turn.....

Fractions of a quantity

A pupil spent $\frac{1}{5}$ of their pocket money – They had spent £3.

How much pocket money in total did they have?

$\frac{1}{5}$



$$5 \times \text{£}3 = \text{£}15$$

Parent Forum Maths Meeting

On behalf of the Maths department,
thank you for attending and participating!!!!

Any questions?????