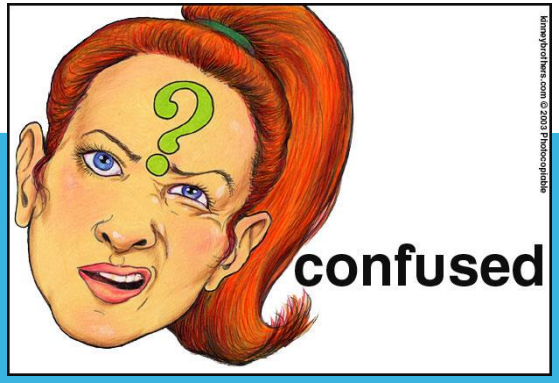
Round decimals to the nearest whole number



Learning Objective

Simplifying Fractions

Simplified Fractions

To simplify a fraction, we find an equivalent fraction which uses the **smallest numbers possible.**

We do this by **dividing.**

$$\frac{24}{40} \begin{matrix} \div 2 \\ \div 2 \end{matrix} = \frac{12}{20}$$

or

$$\frac{24}{40} \begin{matrix} \div 4 \\ \div 4 \end{matrix} = \frac{6}{10}$$

or

$$\frac{24}{40} \begin{matrix} \div 8 \\ \div 8 \end{matrix} = \frac{3}{5}$$

We need to know our tables for this!
Ask yourself, what can I divide both 24 and 40 by?

8 is the biggest number we can divide both by and 3/5 uses the smallest possible numbers as we cannot divide them by anything else.

Look at this one

$$\frac{28}{56}$$

The first thing I notice is that 28 and 56 are both in the 7 times table. So I'm going to divide both numbers by 7.

$$\frac{28}{56} \div 7 = \frac{4}{8}$$

Is this simplified?

NO!

I can still divide both numbers by 4.

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

Let’s work through this together.

$$\frac{48}{60}$$

Try this one with a partner

$$\frac{21}{63}$$

Try this one with a partner

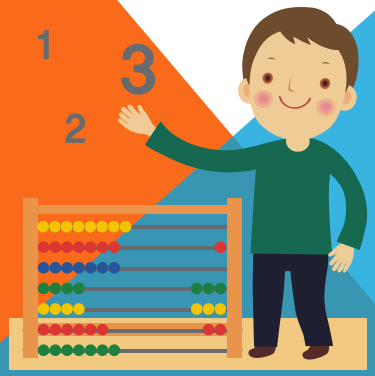
$$\frac{45}{90}$$

Try this one with a partner

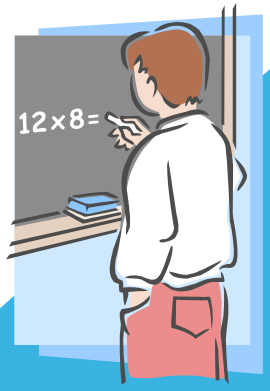
$$\frac{32}{56}$$

OMA

Round Decimal numbers to the nearest 10^{th} or 100^{th}



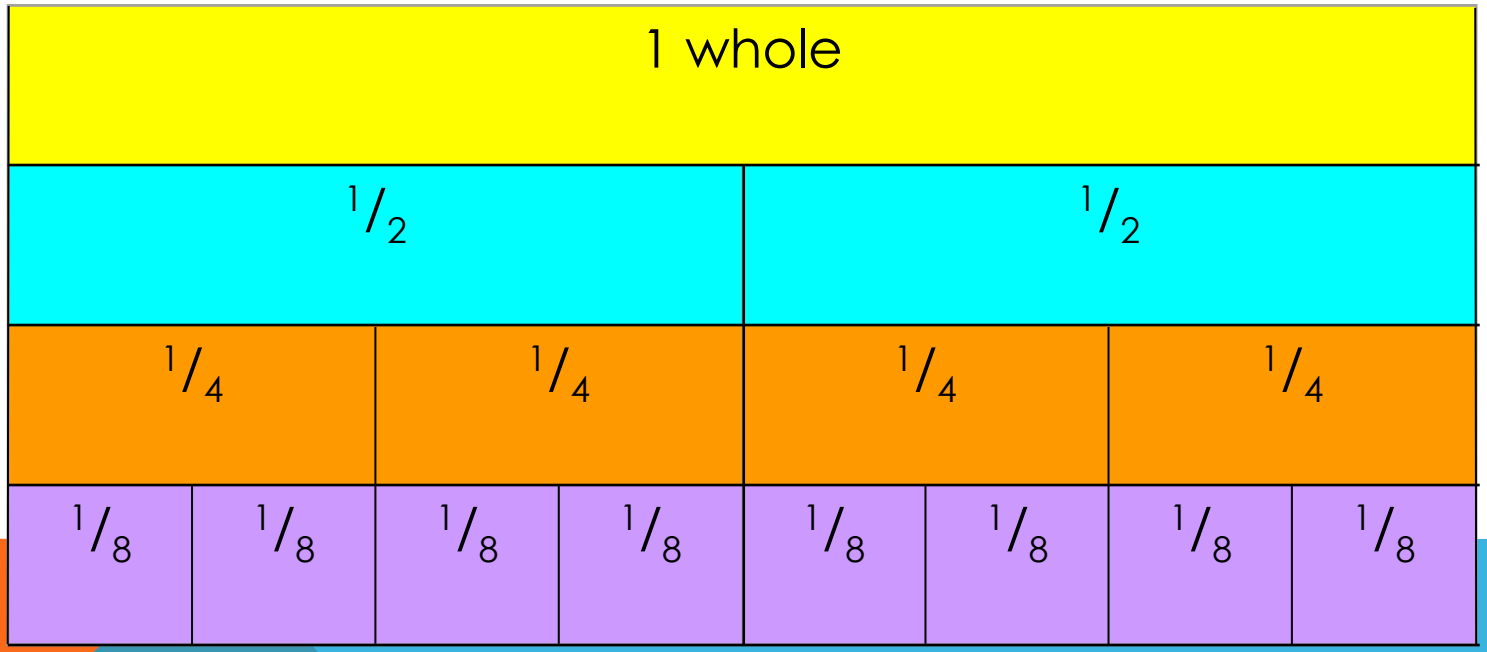
Learning Objective

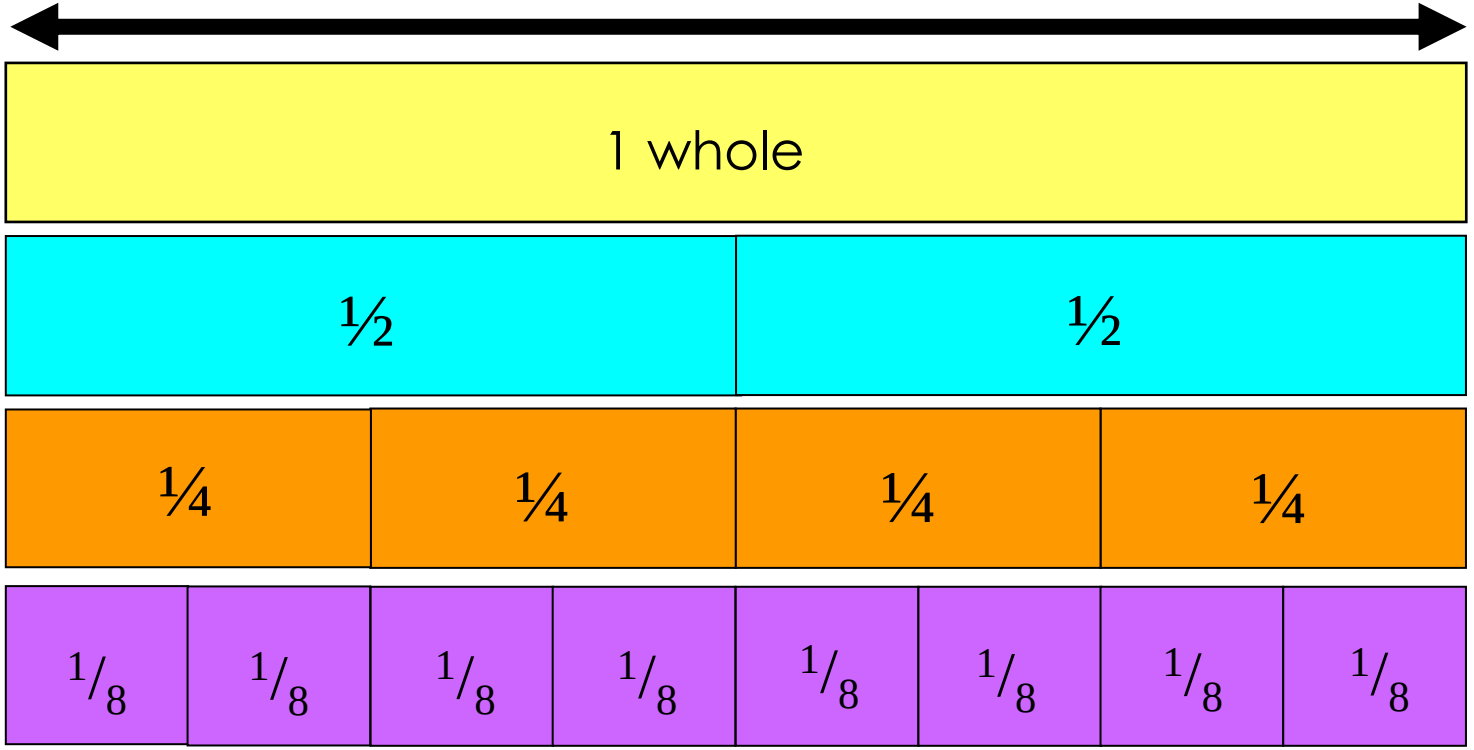


Consolidate recognition of equivalent fractions.

Equivalent fractions

We are learning about equivalent fractions

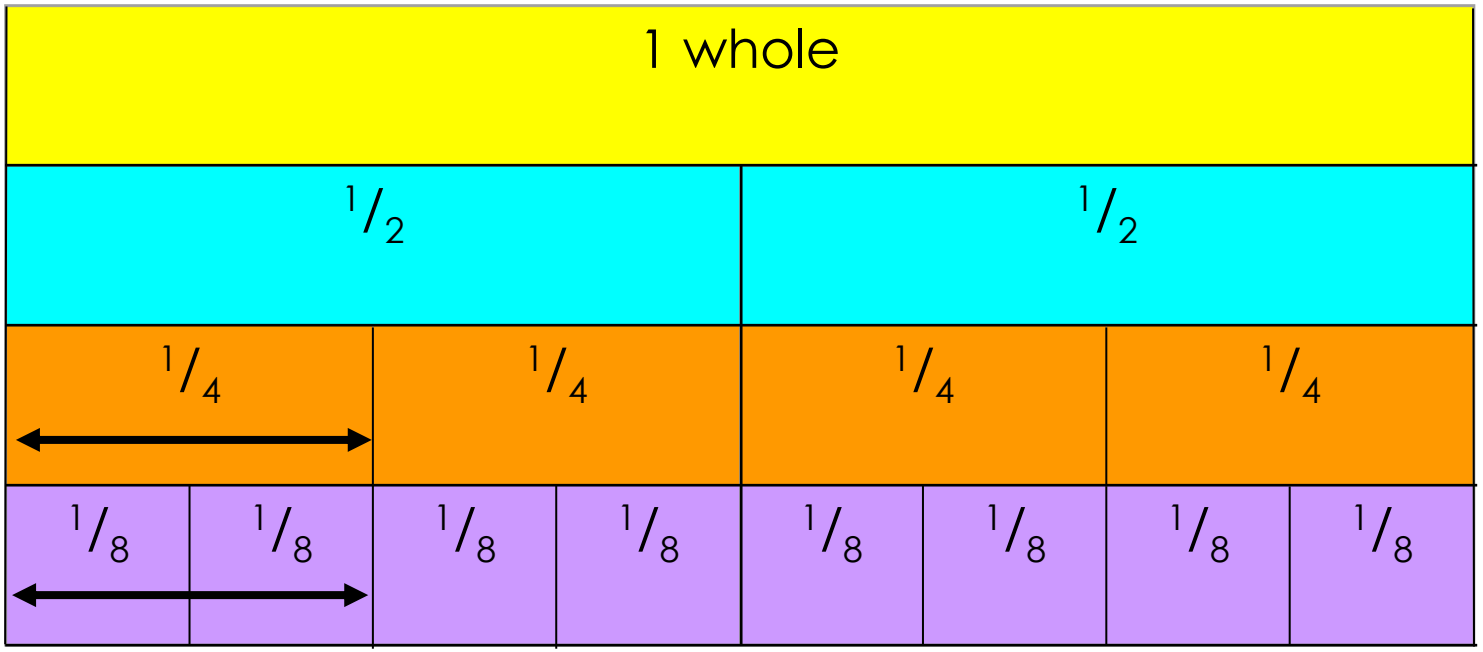




We can see that

$$1/1 = 2/2 = 4/4 = 8/8$$

They are equivalent fractions

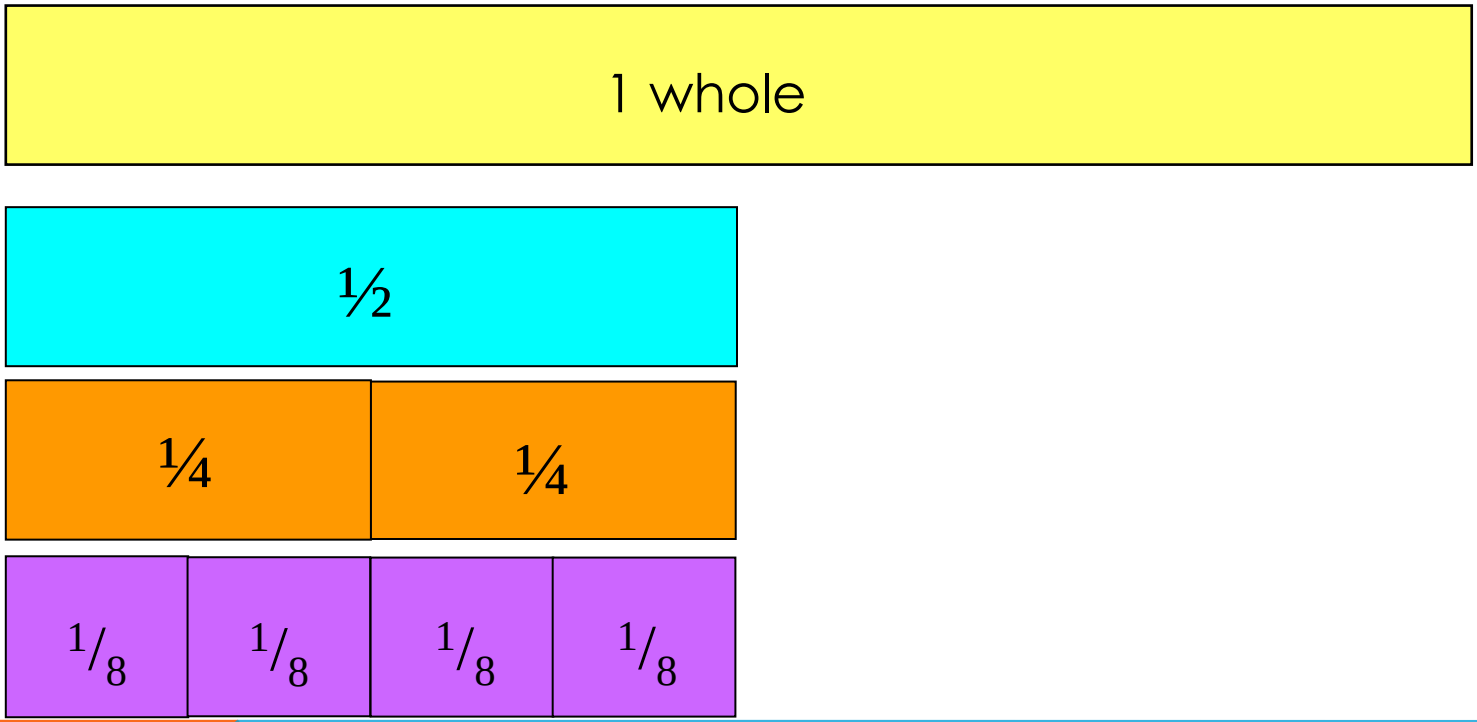


We can see that $^{2}/_{8}$ is the same length as $^{1}/_{4}$

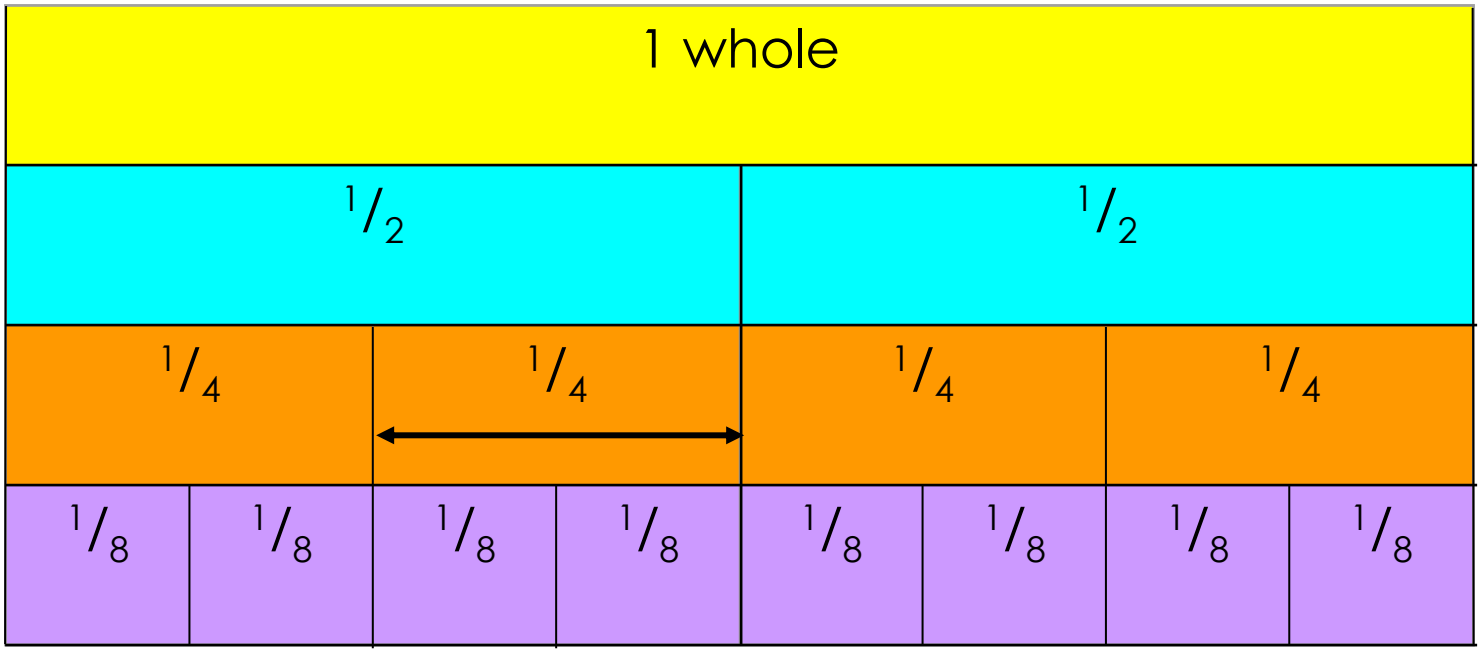
So $^{2}/_{8} = {}^{1}/_{4}$

They are equivalent fractions

Which fractions are equivalent to $\frac{1}{2}$?



$$1/2 = 2/4 = 4/8$$



Which of these fractions is equivalent to $^1/_4$?

$^1/_8$

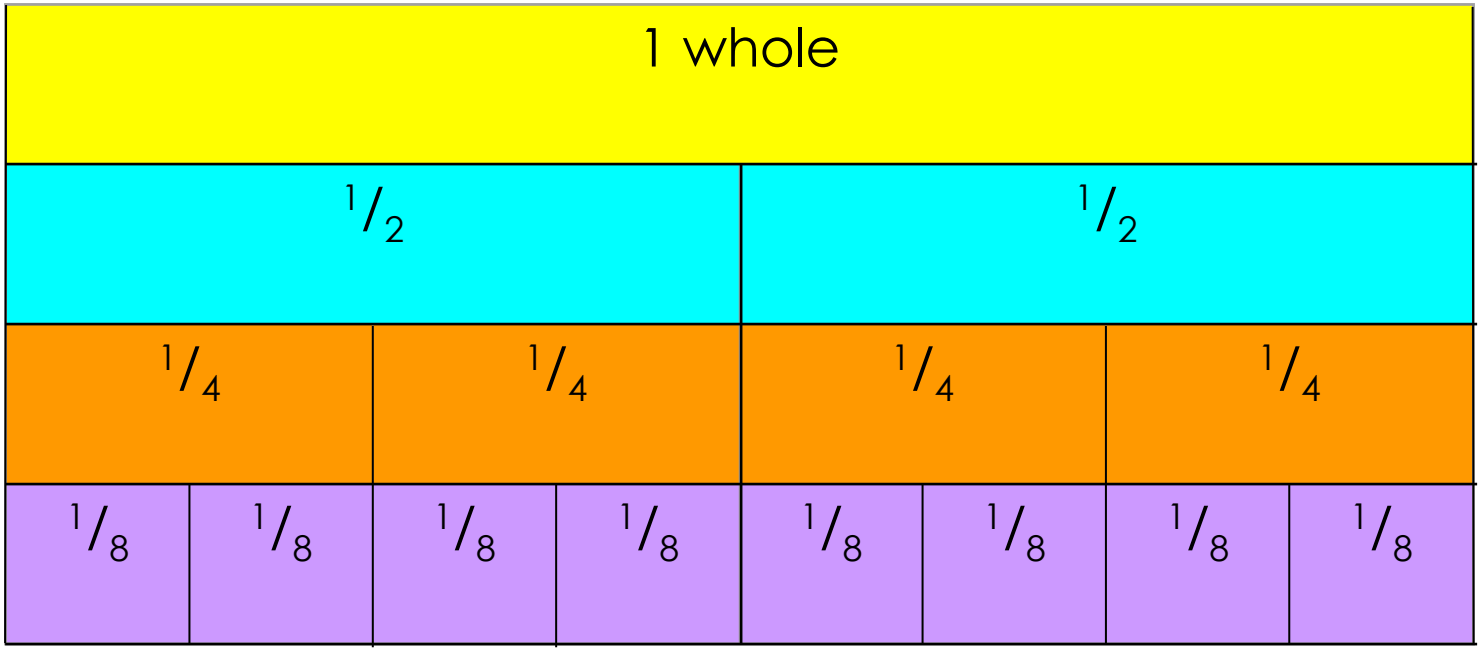
$^1/_2$

$^2/_8$

WHOOPS TRY AGAIN!

WELL DONE!

THAT'S RIGHT



Which of these fractions is equivalent to $^{4}/_{8}$?

$^{1}/_{8}$

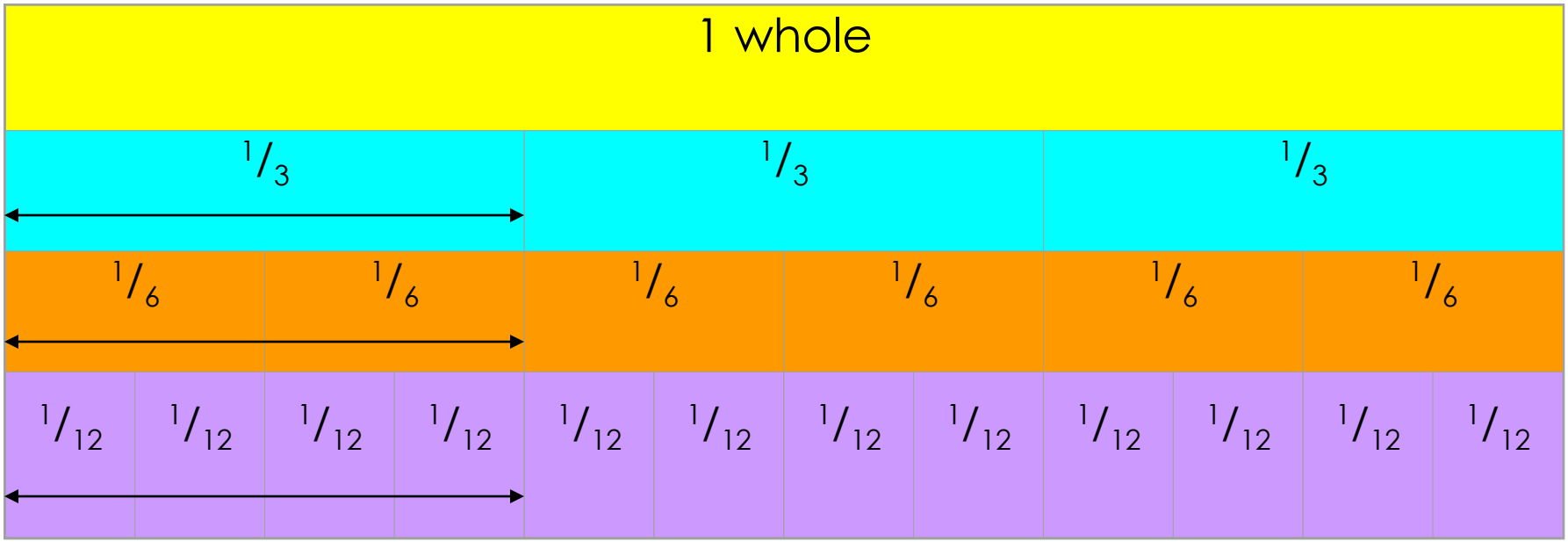
$^{2}/_{4}$

$^{1}/_{4}$

WHOOPS TRY AGAIN!

WELL DONE!

THAT'S RIGHT

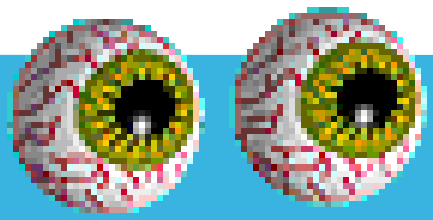


$\frac{1}{3} = \frac{2}{6} = \frac{4}{12}$

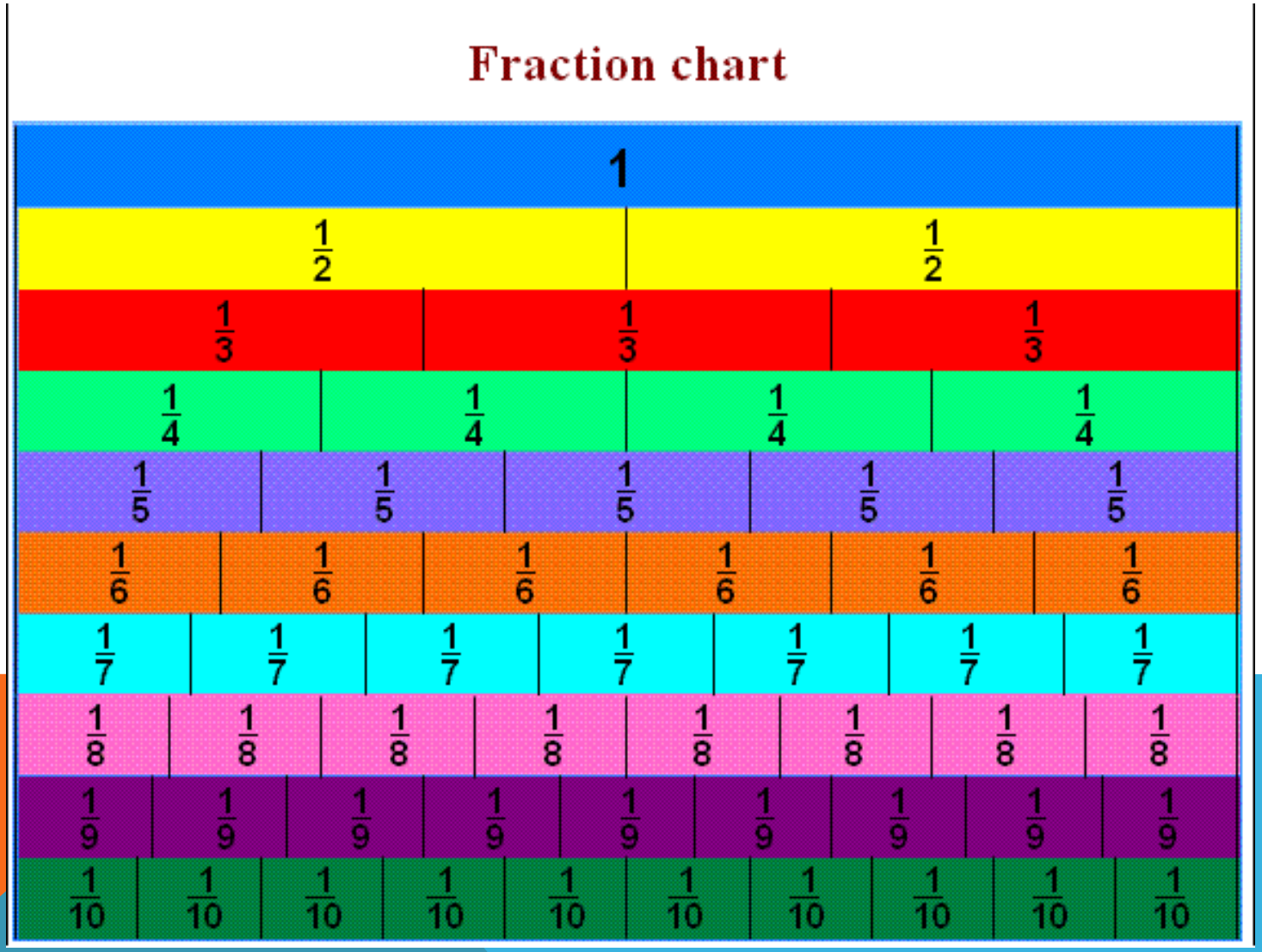
Look at the equivalent fractions – each time the numerators double, the denominators also double. Which other fraction will be equivalent?

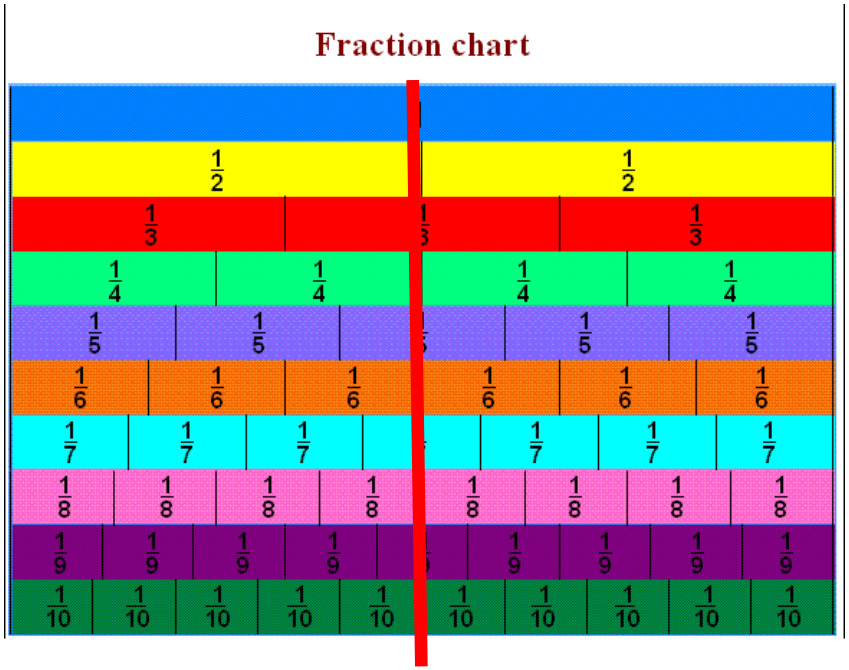
$\frac{8}{24}$ $\frac{6}{24}$ $\frac{4}{24}$

WHOOPS TRY AGAIN!



Equivalent Fractions





We can see that ½ is the same as 2/4, 3/6, 4/8 and 5/10.
These are EQUIVALENT FRACTIONS.

Find me an equivalent of:

2/8 3/9 8/10 9/9 4/6

How do we know that two fractions are the same?

We cannot tell whether two fractions are the same until we simplify them to their lowest terms.

A fraction is in its lowest terms (simplified) if we cannot find a whole number (other than 1) that can divide into both its numerator and denominator (A common factor).
Examples:

$\frac{6}{10}$ is not reduced because 2 can divide into both 6 and 10.

$\frac{35}{40}$ is not reduced because 5 divides into both 35 and 40.

How do we know that two fractions are the same?

More examples:

$\frac{110}{260}$ is not reduced because 10 can divide into both 110 and 260.

$\frac{8}{15}$ is reduced.

$\frac{11}{23}$ is reduced

To find out whether two fraction are equal, we need to reduce them to their lowest terms.

How do we know that two fractions are the same?

Examples:

Are $\frac{14}{21}$ and $\frac{30}{45}$ equal?

$$\frac{14}{21} \xrightarrow{\textit{reduce}} \frac{14\div 7}{21\div 7}=\frac{2}{3}$$

$$\frac{30}{45} \xrightarrow{\textit{reduce}} \frac{30\div 5}{45\div 5}=\frac{6}{9} \xrightarrow{\textit{reduce}} \frac{6\div 3}{9\div 3}=\frac{2}{3}$$

Now we know that these two fractions are actually the same!

How do we know that two fractions are the same?

Another example:

Are $\frac{24}{40}$ and $\frac{30}{42}$ equal?

$$\frac{24}{40} \xrightarrow{\textit{reduce}} \frac{24\div 2}{40\div 2}=\frac{12}{20} \xrightarrow{\textit{reduce}} \frac{12\div 4}{20\div 4}=\frac{3}{5}$$

$$\frac{30}{42} \xrightarrow{\textit{reduce}} \frac{30\div 6}{42\div 6}=\frac{5}{7}$$

This shows that these two fractions are not the same!

Simplify the following Fractions...

Ordering fractions

If the DENOMINATOR is the same, look at the NUMERATORS, and put the fractions in order.

$$\frac{1}{9} \quad \frac{2}{9} \quad \frac{3}{9} \quad \frac{4}{9} \quad \frac{7}{9}$$

(if ordered smallest ⟶ largest)

Ordering fractions

If the DENOMINATOR is different, we have a problem that must be dealt with differently.

$$\frac{3}{6} \quad \frac{7}{8} \quad \frac{4}{4} \quad \frac{1}{3} \quad \frac{2}{4}$$

We need to convert our fractions to EQUIVALENT fractions of the same DENOMINATOR. We will come back to this example.

Ordering fractions

If the DENOMINATOR is the different, we have a problem that must be dealt with differently.

$$\frac{4}{6} \qquad \frac{3}{9}$$

Here's an easier example, with just 2 fractions to start us off.

Ordering fractions

Look at the denominators. We must look for a COMMON MULTIPLE.

$$\frac{4}{6} \qquad \frac{3}{9}$$

This means that we check to see which numbers are in the 6 times table, and the 9 times table. We need a number that appears in both lists.

Ordering fractions

Look at the denominators. We must look for a COMMON MULTIPLE.

Multiples of 6 are

6, 12, 18, 24, 30, 36, 42, 48, 54, 60……

Multiples of 9 are

9, 18, 27, 36, 45, 54, 63, 72, 81, 90……

Ordering fractions

COMMON MULTIPLES are:

Multiples of 6 are

6, 12, 18, 24, 30, 36, 42, 48, 54, 60……

Multiples of 9 are

9, 18, 27, 36, 45, 54……

Ordering fractions

COMMON MULTIPLES are:

18, 36 and 54. There are others that are higher, but we only look at smaller numbers.

Remember: Smaller numbers are SIMPLER.

18 is the smallest number that is common, so we'll use this.

Ordering fractions

We need to convert these fractions so they have the same denominator.

$$\frac{4}{6} \xrightarrow{\times 3} \frac{?}{18}$$

$\times 3$

Ordering fractions

We need to convert these fractions so they have the same denominator.

$$\frac{4}{6} \xrightarrow{\times 3} \frac{12}{18}$$

Ordering fractions

We need to convert these fractions so they have the same denominator.

$$\frac{3}{9} \xrightarrow{\times 2} \frac{?}{18}$$

$\times 2$

Ordering fractions

We need to convert these fractions so they have the same denominator.

$$\frac{3}{9} \xrightarrow{\times 2} \frac{6}{18}$$

Ordering fractions

So these fractions:

$\frac{4}{6}$ $\frac{3}{9}$

Are EQUIVALENT to these ones:

$\frac{12}{18}$ $\frac{6}{18}$

Ordering fractions

And this is the correct order

$$\frac{3}{9} \quad \frac{4}{6}$$

Because these EQUIVALENT FRACTIONS are in order

$$\frac{6}{18} \quad \frac{12}{18}$$

Ordering fractions

Remember our example

$$\frac{3}{6} \quad \frac{7}{8} \quad \frac{4}{4} \quad \frac{1}{3} \quad \frac{2}{4}$$

The LOWEST COMMON DENOMINATOR is 24 – check for all the multiples of the DENOMINATORS. 24 is the first number to appear in all the lists.

Ordering fractions

Convert to 24ths

$$\frac{12}{24} \quad \frac{21}{24} \quad \frac{24}{24} \quad \frac{8}{24} \quad \frac{12}{24}$$

The LOWEST COMMON DENOMINATOR is 24 – check for all the multiples of the DENOMINATORS. 24 is the first number to appear in all the lists.

Ordering fractions

Convert to 24ths

2nd	4th	5th	1st	3rd
$\frac{12}{24}$	$\frac{21}{24}$	$\frac{24}{24}$	$\frac{8}{24}$	$\frac{12}{24}$

This tells you how large our fractions are. Check which order they go in.

Ordering fractions

Convert to 24ths

2nd	4th	5th	1st	3rd
↓	↓	↓	↓	↓
$\frac{3}{6}$	$\frac{7}{8}$	$\frac{4}{4}$	$\frac{1}{3}$	$\frac{2}{4}$

This tells you how large our fractions are. Check which order they go in.

Ordering fractions

$$\frac{1}{3} \quad \frac{3}{6} \quad \frac{2}{4} \quad \frac{7}{8} \quad \frac{4}{4}$$

So this is the correct order

Ordering Fractions 2

If we want to order fractions, we need to make sure our working out is clear.

For every question, please use the following method.

$\frac{5}{9}$ $\frac{7}{12}$ $\frac{3}{6}$ $\frac{3}{4}$

We look for a COMMON MULTIPLE.

Ordering Fractions 2

$\frac{5}{9}$ $\frac{7}{12}$ $\frac{3}{6}$ $\frac{3}{4}$

Look at the DENOMINATORS.
What are the MULTIPLES?

Ordering Fractions 2

$\frac{5}{9}$ $\frac{7}{12}$ $\frac{3}{6}$ $\frac{3}{4}$

9: 9, 18, 27, 36, 45, 54, …

12: 12, 24, 36, 48, 60, …

6: 6, 12, 18, 24, 30, 36, 48, …

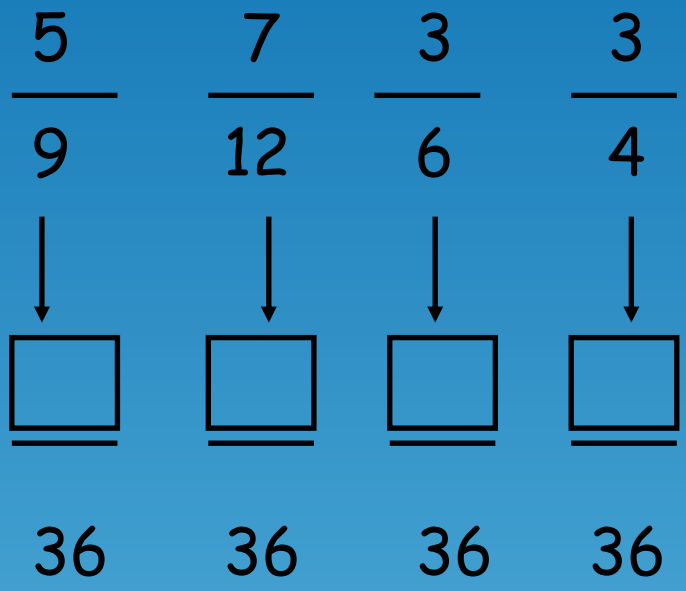
4: 4, 8, 12, 16, 20, 24, 28, 32, 36,…

Ordering Fractions 2

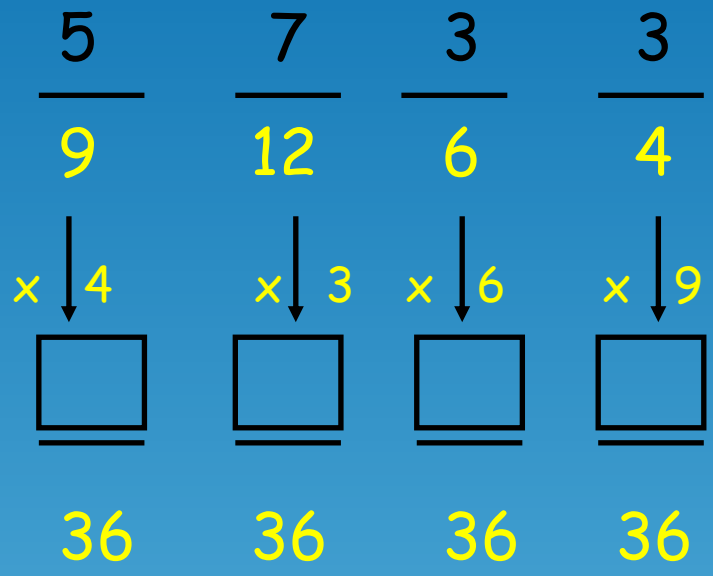
$\frac{5}{9}$ $\frac{7}{12}$ $\frac{3}{6}$ $\frac{3}{4}$

Use 36 as the COMMON DENOMINATOR.

Ordering Fractions 2

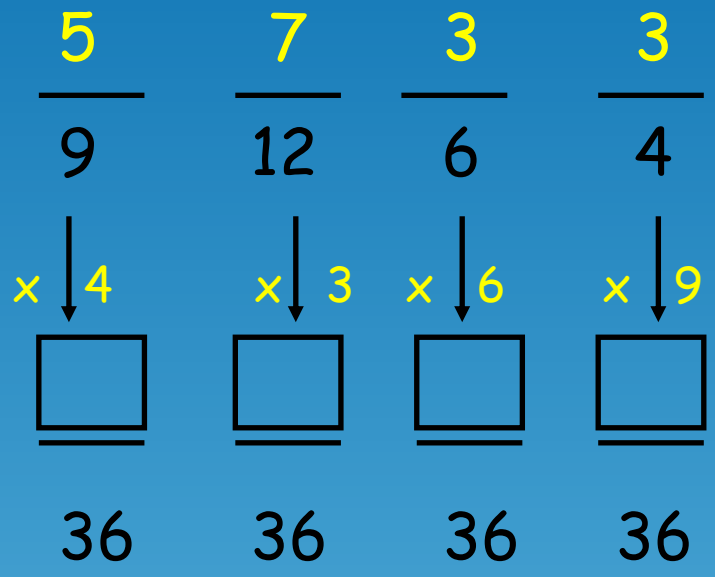


Ordering Fractions 2



Find the number that you need to multiply the DENOMINATORS by to get 36.

Ordering Fractions 2



Multiply the NUMERATORS by the same amount as you multiplied the DENOMINATORS

Ordering Fractions 2

$\frac{5}{9}$	$\frac{7}{12}$	$\frac{3}{6}$	$\frac{3}{4}$
x 4	x 3	x 6	x 9
$\frac{20}{36}$	$\frac{21}{36}$	$\frac{18}{36}$	$\frac{27}{36}$

Ordering Fractions 2

$\frac{5}{9}$	$\frac{7}{12}$	$\frac{3}{6}$	$\frac{3}{4}$
x 4	x 3	x 6	x 9
$\frac{20}{36}$	$\frac{21}{36}$	$\frac{18}{36}$	$\frac{27}{36}$

2nd	3rd	1st	4th

Decide which order the fractions need to be in.

Ordering Fractions 2

$\frac{5}{9}$ $\frac{7}{12}$ $\frac{3}{6}$ $\frac{3}{4}$

x 4 x 3 x 6 x 9

$\frac{20}{36}$ $\frac{21}{36}$ $\frac{18}{36}$ $\frac{27}{36}$ → $\frac{18}{36}$ $\frac{20}{36}$ $\frac{21}{36}$ $\frac{27}{36}$

putting them in order…

2	3	1	4

Ordering Fractions 2

$\frac{5}{9}$ $\frac{7}{12}$ $\frac{3}{6}$ $\frac{3}{4}$

$\times 4$ $\times 3$ $\times 6$ $\times 9$

$\frac{20}{36}$ $\frac{21}{36}$ $\frac{18}{36}$ $\frac{27}{36}$

2 3 1 4

Now convert them back...

$\frac{18}{36}$ $\frac{20}{36}$ $\frac{21}{36}$ $\frac{27}{36}$

$\frac{3}{6}$ $\frac{5}{9}$ $\frac{7}{12}$ $\frac{3}{4}$

Ordering Fractions 2

$\frac{5}{9}$ $\frac{7}{12}$ $\frac{3}{6}$ $\frac{3}{4}$

× 4 × 3 × 6 × 9

$\frac{20}{36}$ $\frac{21}{36}$ $\frac{18}{36}$ $\frac{27}{36}$

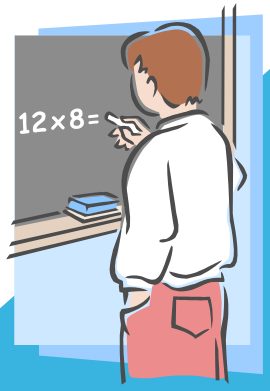
2 3 1 4

and the final answer…

$\frac{18}{36}$ $\frac{20}{36}$ $\frac{21}{36}$ $\frac{27}{36}$

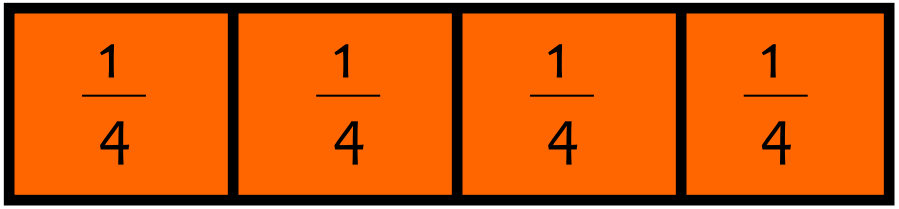
$\frac{3}{6}$ $\frac{5}{9}$ $\frac{7}{12}$ $\frac{3}{4}$

Learning Objective

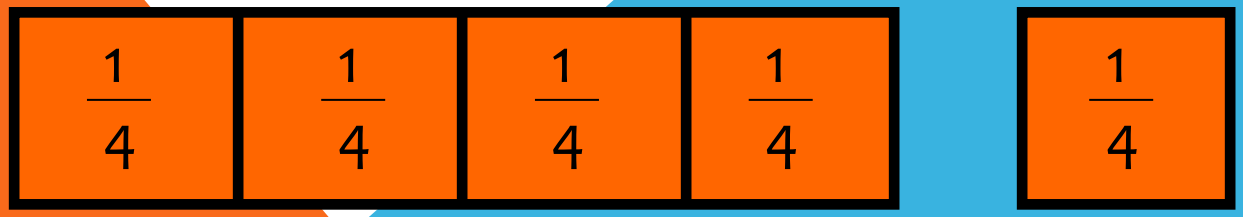


Consolidate changing an improper Fraction to a mixed number and vice versa

FRACTIONS

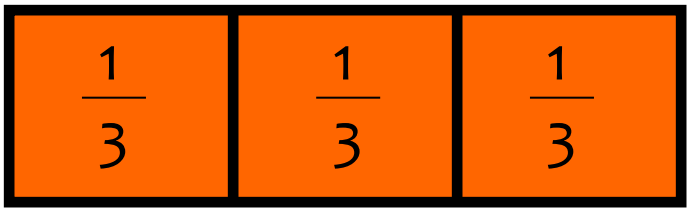


$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{4}{4} = 1$$

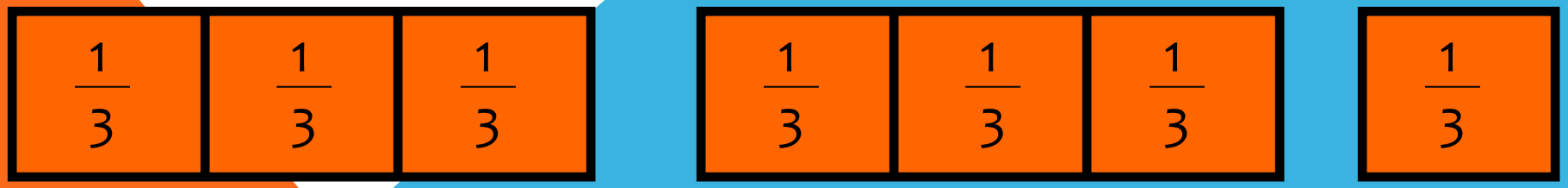


$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{5}{4} = 1\frac{1}{4}$$

FRACTIONS

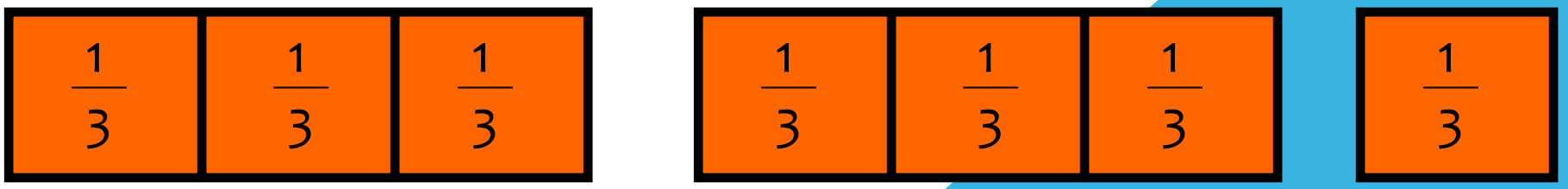


$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{3}{3} = 1$$



$$\frac{7}{3} = 2\frac{1}{3}$$

FRACTIONS

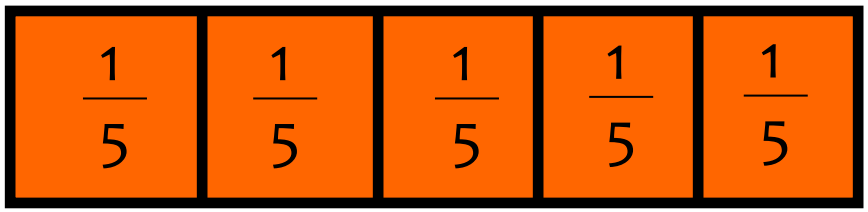


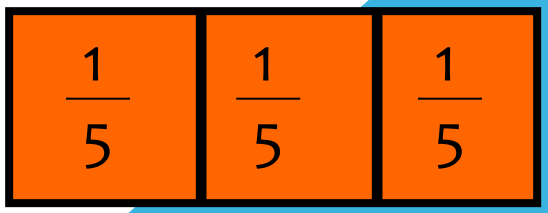
$$\frac{7}{3} = 2\frac{1}{3}$$

Improper Fraction

Mixed Number

FRACTIONS



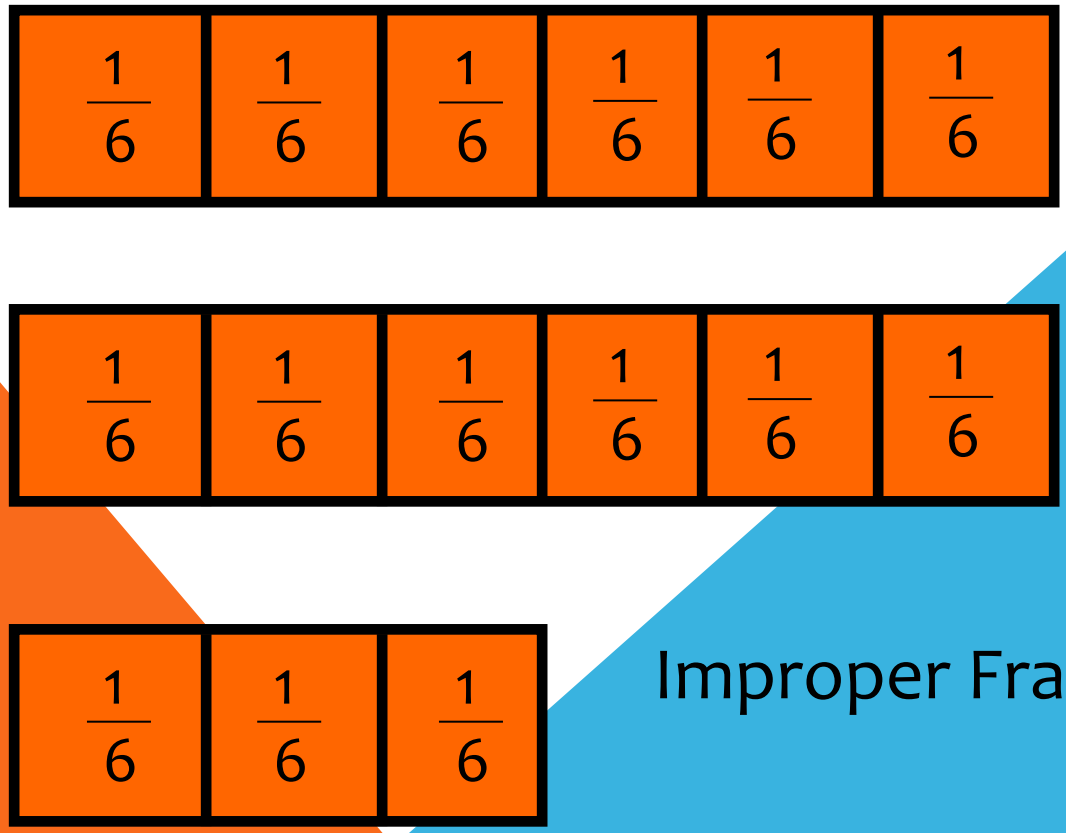


Improper Fraction

Mixed Number

$$\frac{8}{5} = 1\frac{3}{5}$$

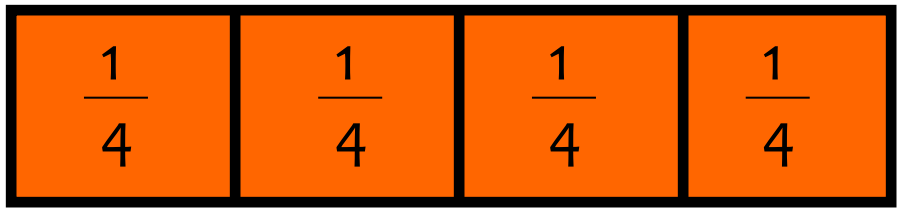
FRACTIONS

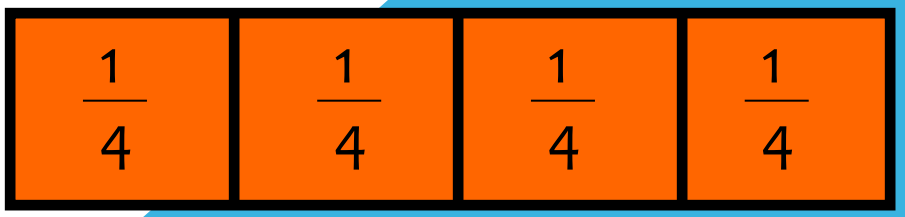


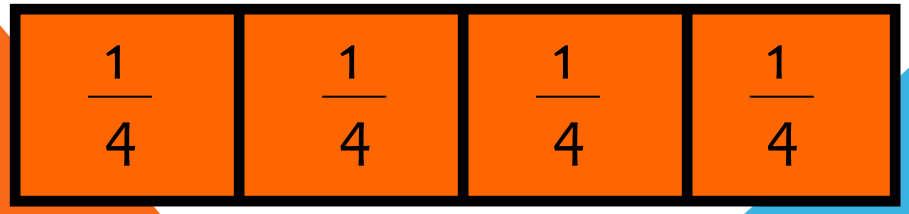
Improper Fraction Mixed Number

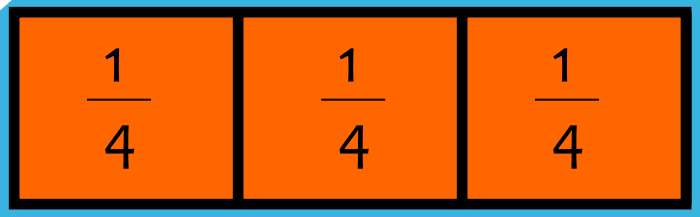
$$\frac{15}{6} = 2\frac{3}{6}$$

FRACTIONS









Improper Fraction Mixed Number

$$\frac{15}{4} = 3\frac{3}{4}$$

To convert an improper fraction to a mixed number what do you do?

Numerator ÷ Denominator

If it isn't a whole number then keep the denominator the same.

$3\frac{1}{3}$

$\frac{13}{6}$

$\frac{8}{5}$

$\frac{10}{3}$

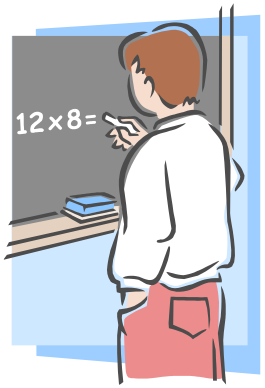
$\frac{7}{4}$

$2\frac{1}{6}$

$1\frac{3}{4}$

$1\frac{3}{5}$

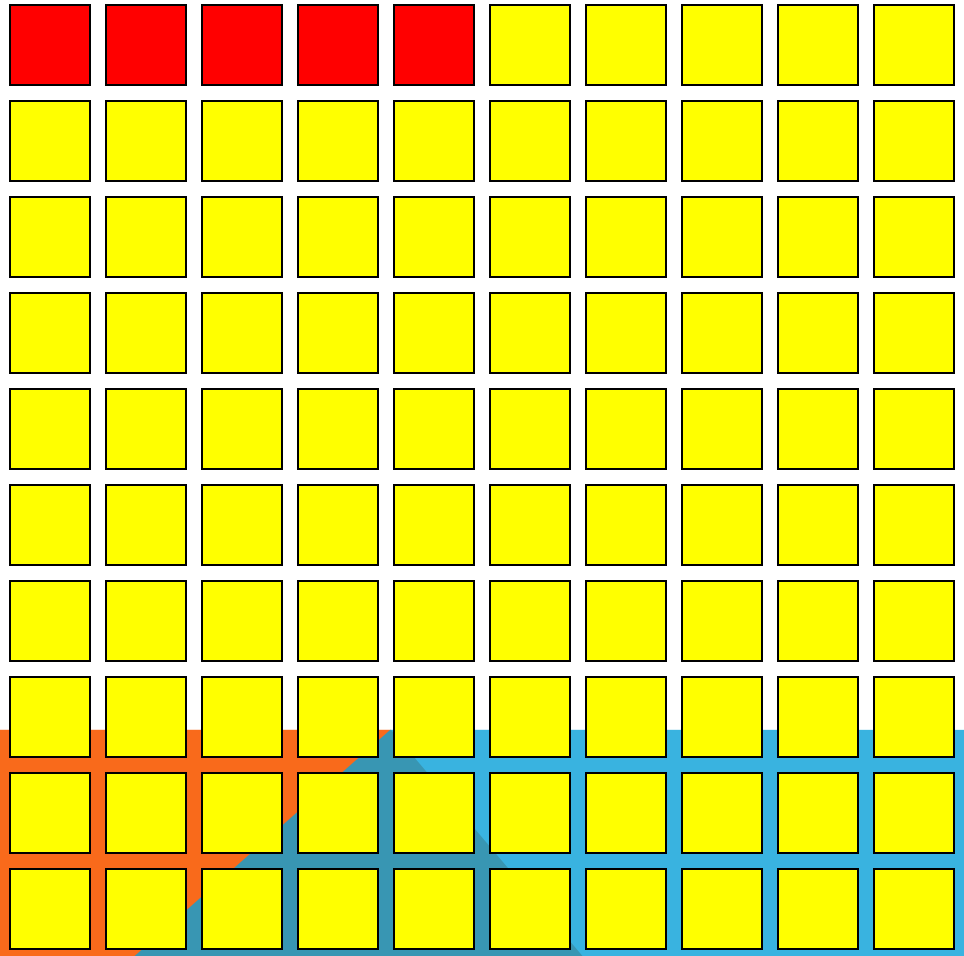
Learning Objective



Revise knowledge of converting Fractions, Decimals and Percentages.

The connection between fractions, decimals and percentages.

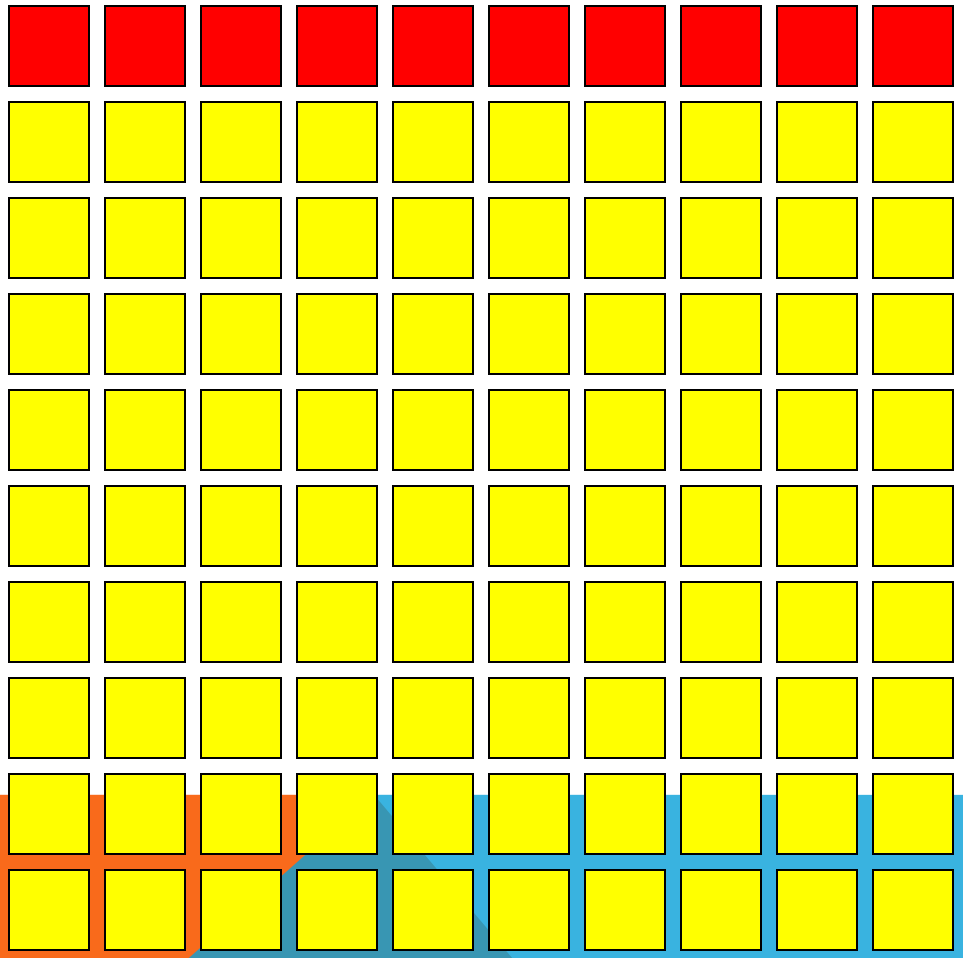
Share into 100 equal parts.



Fraction	Decimal	%
$\frac{1}{100}$	0.01	1%
$\frac{2}{100}$	0.02	2%
$\frac{3}{100}$	0.03	3%
$\frac{4}{100}$	0.04	4%
$\frac{5}{100}$	0.05	5%

The connection between fractions, decimals and percentages.

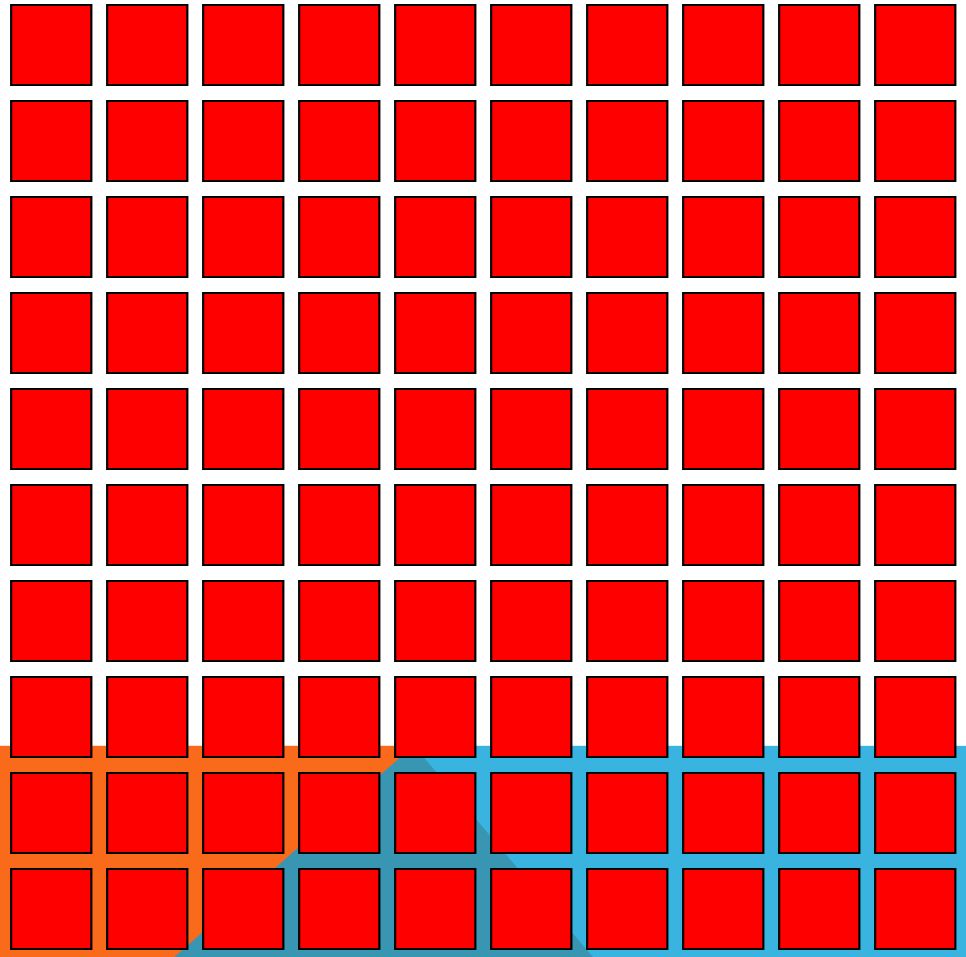
Share into 100 equal parts.



Fraction	Decimal	%
$\frac{6}{100}$	0.06	6%
$\frac{7}{100}$	0.07	7%
$\frac{8}{100}$	0.08	8%
$\frac{9}{100}$	0.09	9%
$\frac{1}{10}$ $\frac{10}{100}$	0.10	10%

The connection between fractions, decimals and percentages.

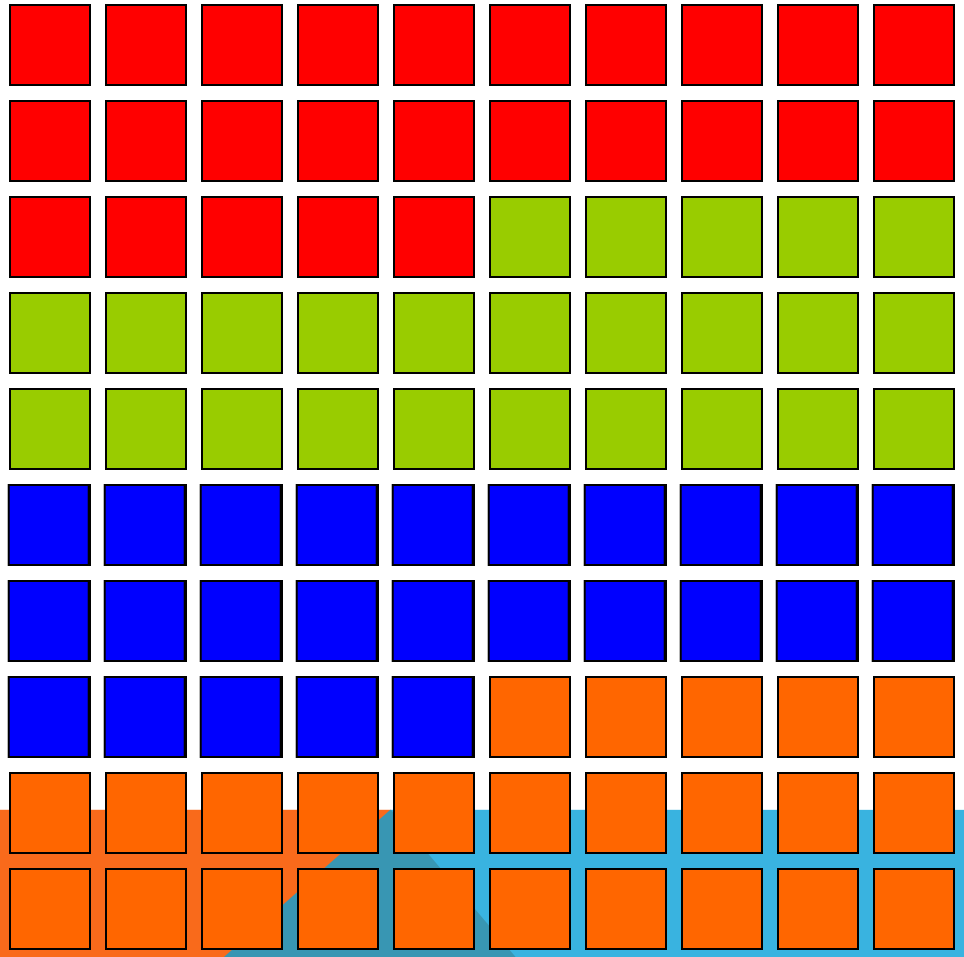
Share into 100 equal parts.



Fraction	Decimal	%
$\frac{10}{100}$	0.10	10%
$\frac{15}{100}$	0.15	15%

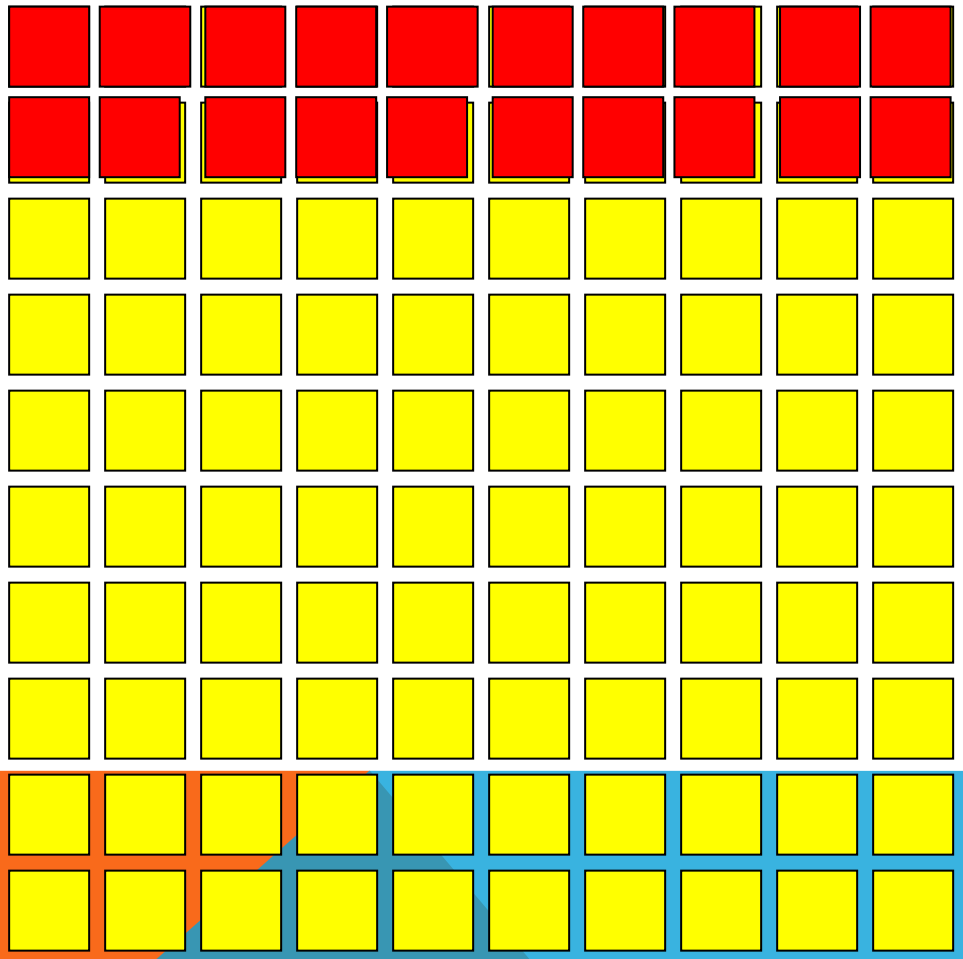
The connection between fractions, decimals and percentages.

Share into 100 equal parts.



Fraction	Decimal	%
$\frac{1}{4}$	$\frac{25}{100}$	0.25	25%

TENTHS AND FIFTHS



$$\frac{1}{5} = \frac{2}{10} = 0.20$$

So find a tenth and double it!

To convert 3/5 to a decimal.

Convert 3/10 = 0.3

Double it to get 0.6!

Now convert these to decimals...

25%

20%

80%

43%

Now convert these to Fractions...

25%

20%

80%

43%

Can you reduce them to their simplest form?

25%

20%

80%

43%

Convert these Decimals to a Fraction and a Percentage...

0.50

0.40

0.75

0.64