



Maths Fluency Year 5

Aut 1	Aut 2	Spring 1	Spring 2	Summer 1	Summer 2
Review year 4 arithmetic Introduce Q 13,14,17, 31	Review previous Q Introduce 2,8 ,23,24,25,26,28,29, 34 Mathsbot	Review previous Q Introduce 3,4,5,6,9,10,15,18,27 ,30,32	Review previous Q Introduce 1,9,21, 27,35, 36	Review previous Q Introduce 7,11,12,16,19,20,22,33	Review all Mathsbot Arithmetic

1	<p>Fraction of an amount- \div by the denominator x by the numerator</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>$\frac{1}{7}$ of 42 = 6</p> </div> <div style="text-align: center;"> <p>$\frac{3}{7}$ of 42 = 18</p> </div> </div>	2	<p>When multiplying by 10, the digits move one place to the left.</p> <p>When multiplying by 10 the number is 10 times bigger.</p> <div style="margin: 10px 0;"> <table border="1" style="border-collapse: collapse; text-align: center; width: 100%;"> <thead> <tr style="background-color: #d9e1f2;"> <th style="width: 25%;">Th</th> <th style="width: 25%;">H</th> <th style="width: 25%;">T</th> <th style="width: 25%;">O</th> </tr> </thead> <tbody> <tr> <td style="height: 40px;"></td> <td></td> <td>7</td> <td>8</td> </tr> </tbody> </table> </div> <div> <table border="1" style="border-collapse: collapse; text-align: center; width: 100%;"> <thead> <tr style="background-color: #d9e1f2;"> <th style="width: 25%;">Th</th> <th style="width: 25%;">H</th> <th style="width: 25%;">T</th> <th style="width: 25%;">O</th> </tr> </thead> <tbody> <tr> <td style="height: 40px;"></td> <td>7</td> <td>8</td> <td>0</td> </tr> </tbody> </table> </div>	Th	H	T	O			7	8	Th	H	T	O		7	8	0
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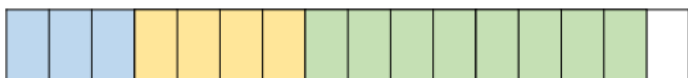


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3 To add different denominators, first find the lowest common multiple

$$\frac{3}{16} + \frac{1}{4} + \frac{1}{2} = \frac{15}{16}$$

$$\frac{3}{16} + \frac{4}{16} + \frac{8}{16}$$



4 How many lots of the divisor go into the dividend?

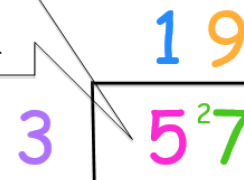
$$57 \div 3 = 19$$

How many times does 3 go into 5?

It goes into 5 once and has a remainder of 2.

How many times does 3 go into 27?

It goes into 27 nine times and has no remainder.



5 23×31

×	20	3
30	600	90
1	20	3

$$600 + 90 + 20 + 3 = 713$$

	H	T	O
		2	3
×		3	1
		2	3
+	6	9	0
	7	1	3
			1

Larger number first
Place value is correct

Line
Line
Line

6



There are 4 plates. $0 \times 4 = 0$
Each plate has 0 doughnuts on it. $4 \times 0 = 0$
There are 0 doughnuts altogether.

Multiplying anything by 0 gives an answer of 0 as this is the same as no lots of anything



There are 4 plates.
Each plate has 1 doughnut on it. $4 \times 1 = 4$
There are 4 doughnuts altogether. $1 \times 4 = 4$

Multiplying anything by 1 gives the same number as this is the same as one lot of anything



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Zero

Dividing anything by 1 gives the same number, as this is just one group of anything.

7

Addend plus addend equals the sum

Larger number first

Think about decimals like money £__.__p

Place value is correct

Start with the Ones

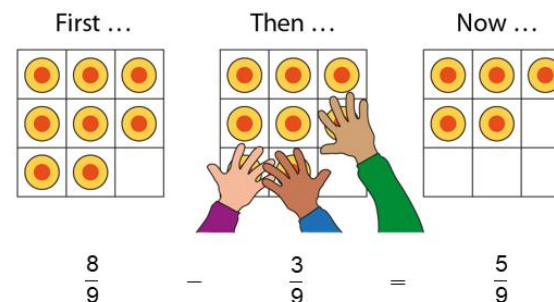
$$2.5 + 3.16 = 5.66$$

Ones	Tenths	Hundredths
● ● ●	●	● ● ● ● ● ● ● ●
● ●	● ● ● ● ● ●	
5	6	6

8

Denominator is the same it stays the same

Subtract the numerators

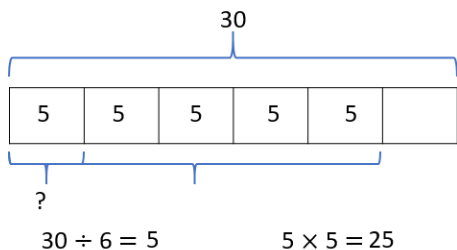




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9 Fraction of an amount \div by the denominator
x by the numerator

$$\frac{5}{6} \times 30 = 25$$



**of is equivalent to
x multiply**

10 Missing number= do the INVERSE

$$\square \times 8 = 4280$$

How many lots of the
divisor go into the
dividend?
Use short division

$57 \div 3 = 19$

How many times does 3 go into 5?
It goes into 5 once and has a remainder of 2.

How many times does 3 go into 27?
It goes into 27 nine times and has no remainder.

11 When multiplying by 10, the digits move **one** place to the left
When multiplying by 10 the number is 10 times bigger
Decimal point never moves

Th	H	T	O	Tth	Hth

12 **Addend plus addend equals the sum**

- Larger number first
- Think about decimals like money £__._p
- Place value is correct
- Drop the decimal point
- Start with the Ones

1	1	•	2
1	0	•	3
2	1	•	5



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13 Minuend minus subtrahend is equal to the difference
 If we cannot subtract, we must exchange from the column to the left.

- Larger number first
- Place value is correct
- Start with the Ones
- Top number smaller than bottom number
- Knock next door to exchange a ten

	5	0	0	0	0
	6	⁹ 0	¹ 0	0	0
-			7	0	0
	5	9	3	0	0

14 Addend plus addend equals the sum

- Larger number first
- Place value is correct
- Start with the Ones

TTh	Th	H	T	O
	2	6	5	7
	1	6	2	3
	4	2	8	0
	1	1		

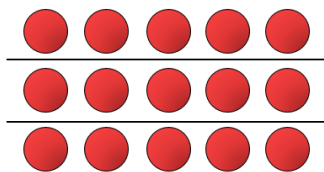
2	6	5	7	4
+	1	6	2	3
4	2	8	0	5
1	1			



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15 lots of ___ make

There are ___ rows of ___ that makes _____



There are 3 rows of 5

$$\underline{5} + \underline{5} + \underline{5} = \underline{15}$$

$$\underline{3} \times \underline{5} = \underline{15}$$

16

Minuend minus subtrahend is equal to the difference
If we cannot subtract, we must exchange from the column to the left.

Larger number first

Think about decimals like money £__._p

Place value is correct

Drop the decimal point

Start with the Ones

Top number smaller than bottom number

Knock next door to exchange a ten

$$3.18 - 1.6 = 1.58$$

2	1	8
1	6	0
1	5	8

Ones	Tenths	Hundredths
● ● ●	● ● ● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●
1	5	8



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17 Minuend minus subtrahend is equal to the difference
If we cannot subtract, we must exchange from the column to the left.

Larger number first

Start with the Ones

Top number smaller than bottom number

Knock next door to exchange a ten

$$\boxed{} = 482 - 90$$
$$\underline{482 - 90} = \boxed{}$$

The minuend and subtrahend are together- normal calculation

18 Larger number first
Place value is correct

Line

Line

Line

Zero

$326 \times 32 = 10,432$

	Th	H	T	O	
		3	2	6	
x			3	2	
		6	5	2	(326 × 2)
+	9	7	8	0	(326 × 30)
1	0	4	3	2	
	1	1			



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19 When multiplying by 10, the digits move **one** place to the left

When multiplying by 100, the digit move **two** places to the left

Th	H	T	O	Tth	Hth

20 **Addend plus addend equals the sum**

Larger number first

Place value is correct

Drop the decimal point

Start with the smallest value

Remember whole numbers can be made a decimal by adding decimal point and 0 in tenths column

$$15 + 9.5 = 24.5$$

	T	O	Tth	Hth	Thth
	1	5	0		
+	0	9	5		
<hr/>					
	2	4	5		
	1				

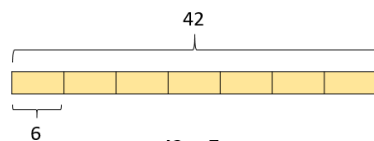


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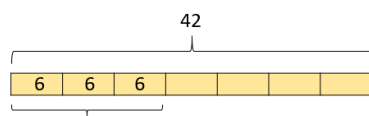
21

Fraction of an amount \div by the denominator
x by the numerator

$$\frac{1}{7} \text{ of } 42 = 6$$



$$\frac{3}{7} \text{ of } 42 = 18$$



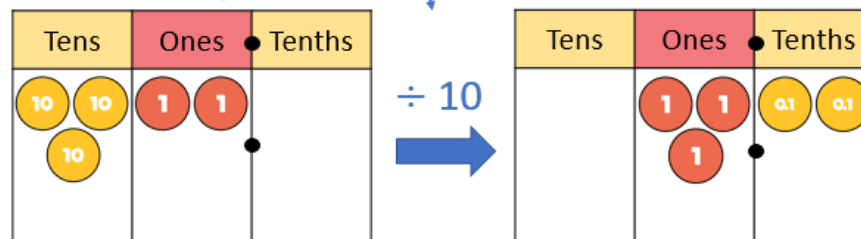
$$42 \div 7 = 6$$

$$6 \times 3 = 18$$

22

When dividing by 10 the number is being split into 10 equal parts
The number is 10 times smaller
When dividing by 10, we move the digits **one** place to the right

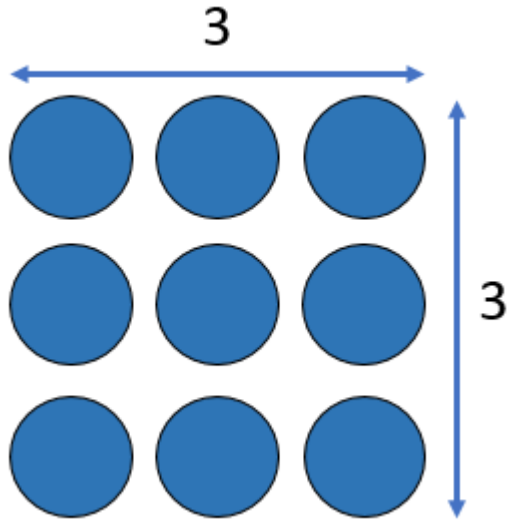
$$32 \div 10 = 3.2$$





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23 A square number is made when you multiply a number by itself



24

100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

Gattegno Chart

$$2 \times 3 = 6$$

$$20 \times 30 = 600$$

$$20 \times 300 = 6000$$



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25

100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

Gattegno Chart

$$2100 \div 30 =$$

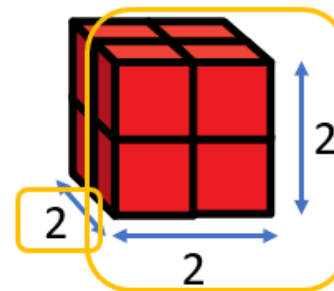
$$\cancel{2100} \div \cancel{30} =$$

Make it ten times smaller

How many lots of the divisor go into the dividend?

26

A cube number is made when you multiply a number by itself twice



$$2 \times 2 \times 2 = 8$$

8 is a cube number.



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27

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



To multiply a fraction by an integer, I multiply the numerator by the integer and the denominator remains the same.

28

100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

Gattegno Chart

$$400 \times 7 = 2800$$

$$4 \times 7 = 28$$

Make the answer 100 times bigger = 2800



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29 $2100 \div 30 =$

~~$2100 \div 30 =$~~

Make it ten times smaller

How many lots of the divisor go into the dividend?

30

Use short division- add a decimal point and a 0 place holder and carry the remainder over the decimal point

73 $\div 5 = 14.6$

$$\begin{array}{r} 14.6 \\ 5 \overline{) 73.30} \end{array}$$



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31

$$2 \times 5 \times 3 \quad 3 \times 2 \times 5 \quad 5 \times 3 \times 2$$

$$10 \times 3 \quad 6 \times 5 \quad 15 \times 2$$

$$30 \quad 30 \quad 30$$

Multiply left to right

32

Equivalent means the same value

Find the LCD and make the fractions equivalent

Denominators the same it stays the same

Subtract numerators

$$\times 2 \left\{ \begin{array}{l} \frac{3}{4} - \frac{3}{8} = \frac{3}{8} \\ \frac{6}{8} \end{array} \right.$$





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33 Addend plus addend equals the sum

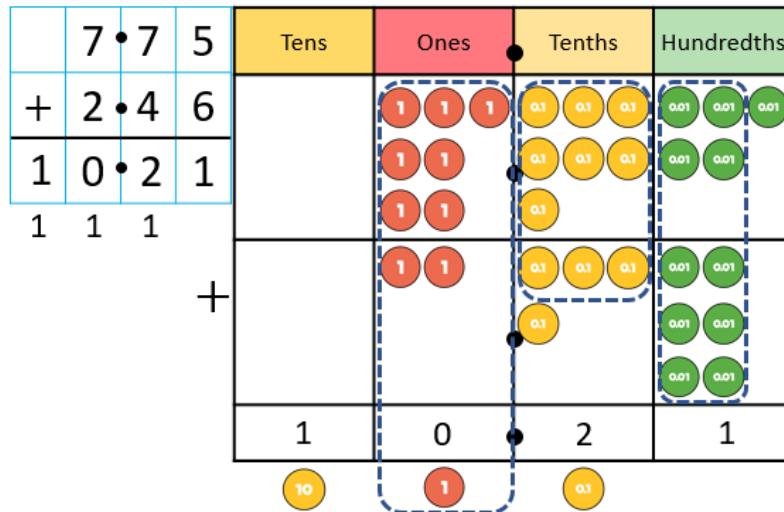
Largest number first

Think about decimals like money £__._p

Place value is correct

Start with the Ones

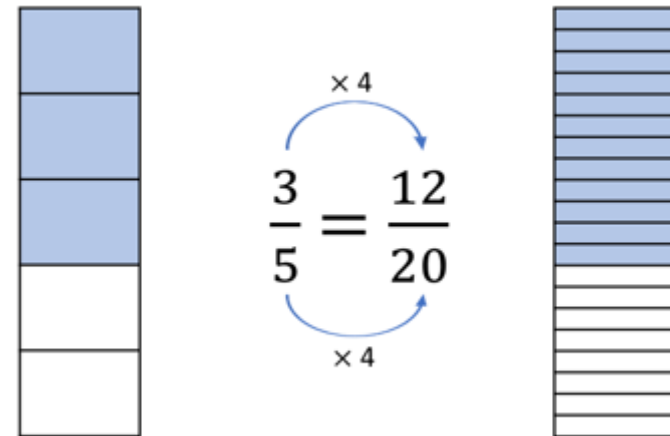
$$7.75 + 2.46 = 10.21$$



34

Equivalent means the same value

To find an equivalent of a given fraction, multiply the numerator and denominator by the same number





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35 Use the inverse

Multiply the integer by the denominator

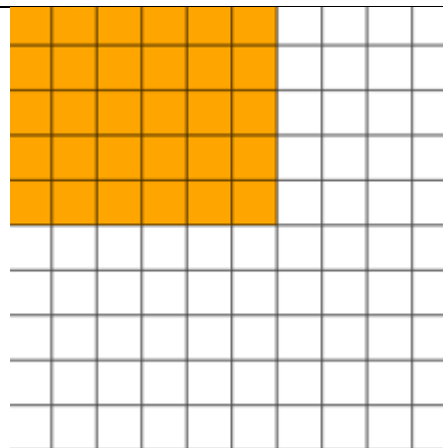
$$\frac{1}{6} \text{ of } \boxed{} = 30$$

?

30	30	30	30	30	30
----	----	----	----	----	----

30

36



$\frac{70}{100}$	70%	0.7
$\frac{30}{100}$	30%	0.3

% Percentage or percent means how many parts per hundred.

Cent means hundred

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- <https://vimeo.com/911532990>