

mastery $\longleftrightarrow$ fluency $\longleftrightarrow$ application

Term Autumn 1 Week beginning 20.9.22

Block Number: Addition, subtraction, multiplication and division

Key vocabulary place value columns
exchange calculation symbol inverse
equation integer addition subtraction

	B	W	S
Add and subtract integers			
Common factors			
Common multiples			
Rules of divisibility			
Primes to 100			
Square and cube numbers			
Multiply up to a 4-digit number by a 2-digit number			
Solve problems with multiplication			

Stem sentences

- In column addition/subtraction, we start with the place value column
- The _____ is in the column. It represents _____
- is a factor of all numbers.
- The largest factor of a number is always _____
- _____ is a factor of because is in the times-table
- The first multiple of a number is always _____
- is a multiple of because $\times =$
- is a common multiple of and
- If a number is divisible by and, then the number must also be divisible by
- If the sum of the digits is divisible by, then the number is divisible by
- A number is divisible by if its ones digit is

20/9/22

Aim

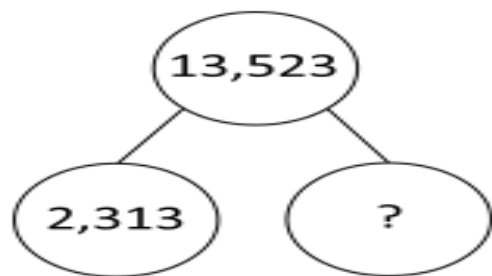
Tues

LO: To add and subtract whole numbers using the column method

1) $42,384 + 32,313 =$

2) $22,357 - 12,144 =$

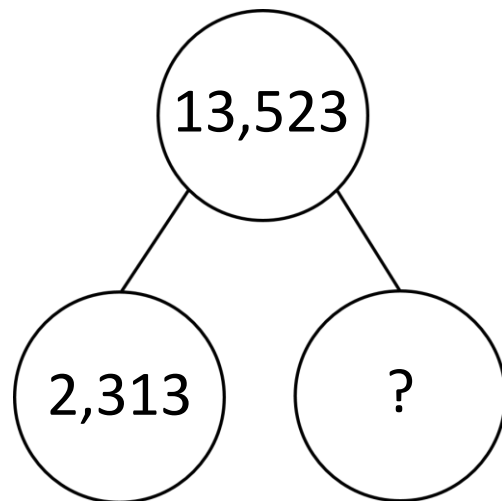
3) Calculate the missing number.



1) $42,384 + 32,313 =$

2) $22,357 - 12,144 =$

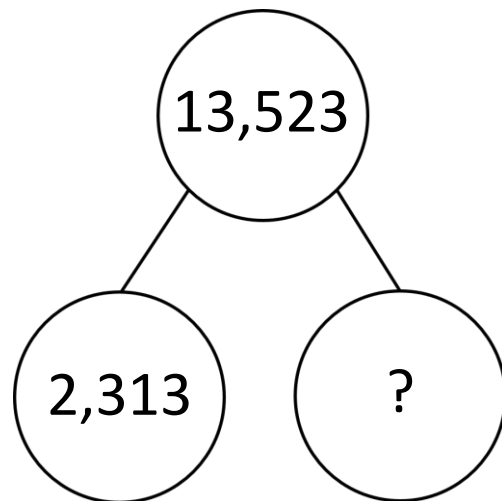
3) Calculate the missing number.



1) $42,384 + 32,313 =$

2) $22,357 - 12,144 =$

3) Calculate the missing number.



altogether

how many

total

What knowledge do we have
already about addition?

increase

join

plus

combined

sum

Crucial vocabulary:

place value

columns

exchange

calculation symbol

inverse

equation

integer

addition subtraction

Dexter scores 12,304 points in a game.
Rosie scores 1,263 points.



How much do they score altogether?

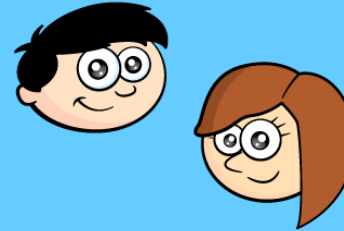
Dexter scores 12,304

Rosie scores 1,263

TTh	Th	H	T	O
	 		  	   
		 	     	  
1	3	5	6	7

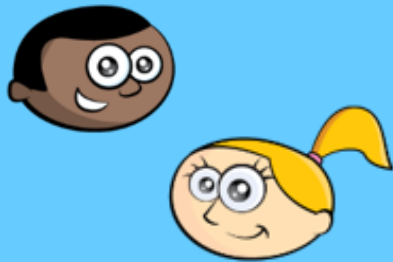
TTh	Th	H	T	O
1	2	3	0	4
	1	2	6	3
1	3	5	6	7

Dexter scores 12,304 points in a game. Have a think
Rosie scores 1,263 points.



How much do they score altogether?

13,567



Mo scores 12,304 points in a game.
Eva scores 1,268 points.

How much do they score altogether?

Mo scores 12,304

Eva scores 1,268

TTh	Th	H	T	O
10,000	1,000 1,000	100 100 100		1 1 1 1
	1,000	100 100	10 10 10 10 10 10	1 1 1 1 1 1 1 1
1	3	5	7	122

TTh	Th	H	T	O
1	2	3	0	4
	1	2	6	8
1	3	5	7	122

1



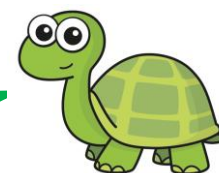
Tiny has used the column method to work out
 $438,321 + 421$

		Hth	TTh	Th	H	T	O	
		4	3	8	3	2	1	
	+	4	2	1				
		8	5	9	3	2	1	



Have a think

The answer is 859,321

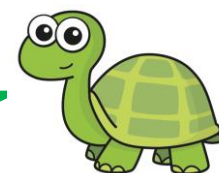


What mistake has Tiny made?

Tiny has used the column method to work out
 $438,321 + 421$

		Hth	TTh	Th	H	T	O	
		4	3	8	3	2	1	
	+	4	2	1				
		4	3	8	7	4	2	

The answer is ~~858,342~~



$$\boxed{530,542} - 346,221 = 184,321$$

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

Part + part = whole

Whole – part = part

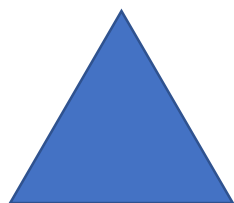


$$935,079 + 679,708$$

Over to you- in books



Your turn



Mrs Lund- out



1 Complete the calculations.

a)

		3	0	5	9	4	
	+	1	5	4	2	3	

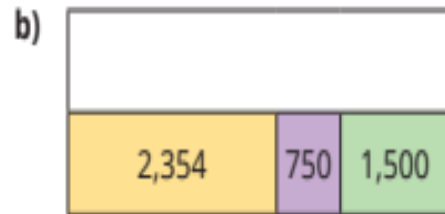
b)

		4	2	4	8	5	0
	-			5	2	3	6

c) $5,236 + 424,850$

d) $30,954 - 15,423$

2 Calculate the missing numbers. Show your method.



c) $23,500 + \boxed{} + 120,578 = 1,201,079$

d) $\boxed{} - 233,233 = 322,322$

1 Complete the calculations.

a)

		3	0	5	9	4	
	+	1	5	4	2	3	

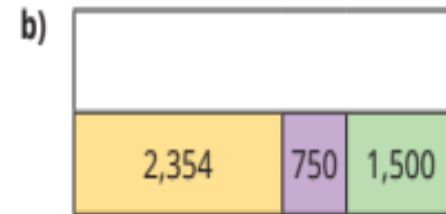
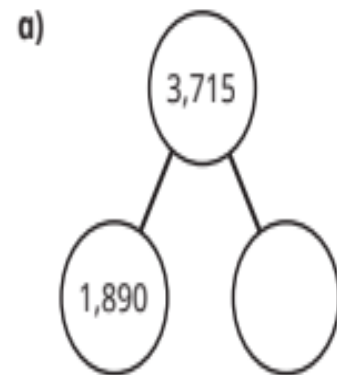
b)

		4	2	4	8	5	0
	-			5	2	3	6

c) $5,236 + 424,850$

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2 Calculate the missing numbers. Show your method.



c) $23,500 + \boxed{} + 120,578 = 1,201,079$

d) $\boxed{} - 233,233 = 322,322$

Add and subtract integers

1 Complete the calculations.

a)

		3	0	5	9	4	
	+	1	5	4	2	3	

b)

		4	2	4	8	5	0
	-			5	2	3	6

c) $5,236 + 424,850$

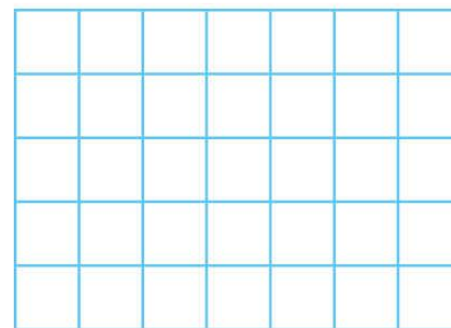
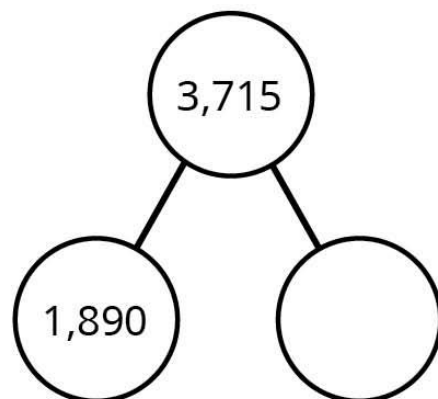
d) $30,594 - 15,423$



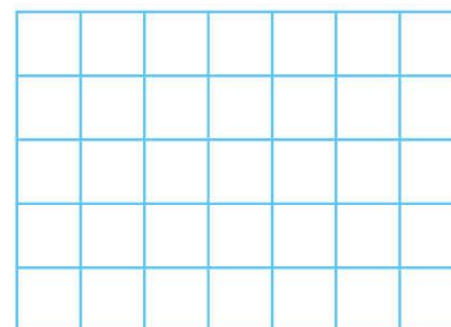
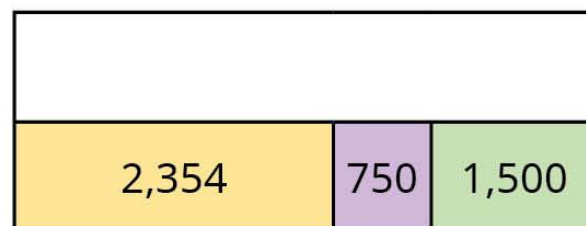


2 Calculate the missing numbers. Show your method.

a)



b)



2 c) $23,500 + \boxed{} + 120,578 = 1,201,079$

d) $\boxed{} - 233,233 = 322,322$

Extension Triangles and Squares - Select two numbers. Roll a dice- if even no add, if odd subtract! Line up the columns!

47,854	72,345	56,789	94,533	43,445	21,245
686,543	34,256	76,544	4,5967	88,644	34,678
56073	45,567	67897	3,332	34,332	28,309
792655	226679	56,907	56,480	33546	214,576
181,589	549255	32,322	87645	467,876	126,211
15687	177,654	16,432	986,875	246,765	63377

Octagon and Hexagon- Select two numbers. Roll a dice- if even no add, if odd subtract! Line up the columns!

47,854	72,345	56,789	94,533	43,445	21,245
686,543	34,256	76,544	4,5967	88,644	34,678
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	4	8	2	4	7
+	3	3	6	8	1
	8	1	9	2	8
	1		1		

+

TTh	Th	H	T	O
10,000 10,000	1,000 1,000	100 100	10 10	1 1
10,000 10,000	1,000 1,000		10 10	1 1
	1,000 1,000			1 1
	1,000 1,000			1
10,000 10,000	1,000 1,000	100 100	10 10	1
10,000	1,000	100 100	10 10	
		100 100	10 10	
			10 10	
8	1	9	2	8

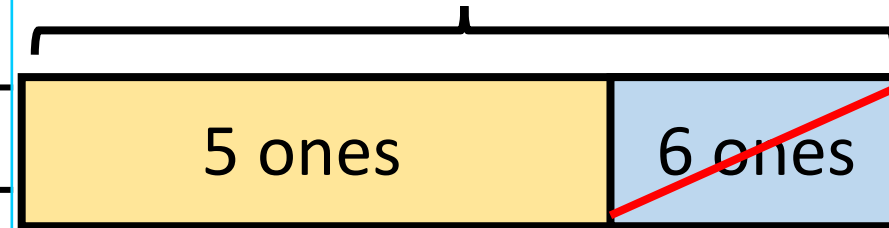


Hex/ Oct only

	6		1	2 3	1
—	1	4	0	1	6
		8	1	1	5

? — 6 ones = 5 ones

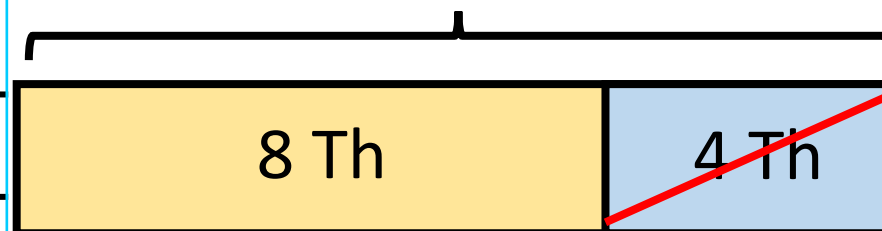
11 ones



TTh	Th	H	T	O
10,000 10,000 10,000 10,000		100	10 10 10	1 1 1 1 1 1 1

	5	6	1	2	3
			1		1
—	1	4	0	1	6
	4	8	1	1	5

? — 4 thousand = 8 thousand
12 thousand



TTh	Th	H	T	O
10,000 10,000 10,000 10,000 10,000	1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000	100	10 10	1 1 1 1 1 1 1 1



4

Fill in the missing numbers.

a)

		8	1		8	5	
	+			0	6		
		9	9	5		8	

c)

		8		4	8	5	
	-	3	6				4
			5	5	5	5	5

b)

		2			5	5	
	-	2		0	5		
			9	0		5	

d)

		2	1		8	5	
	+			0	6		
		4	1	0		2	

Hex/ Oct only



4 Fill in the missing numbers.

a)

		8	1		8	5	
	+			0	6		
		9	9	5		8	

c)

		8		4	8	5	
	-	3	6				4
			5	5	5	5	5

b)

		2			5	5	
	-	2		0	5		
			9	0		5	

d)

		2	1		8	5	
	+			0	6		
		4	1	0		2	

Hex/ Oct only

7

1

3

5

7

9

0

Use each digit card once to complete the calculation.

$$\square\square\square - \square\square\square = \square$$

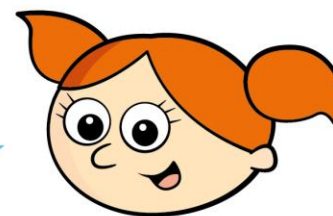
Extension

Try different combinations of digits to get an answer that is as close to 500 as possible.



8

I am thinking of a number. I add 200,000, then subtract half a million, then add a quarter of a million. Then I round to the nearest 10, which is two million and fifty.



What number could Alex have been thinking of to start with?

7

1

3

5

7

9

0

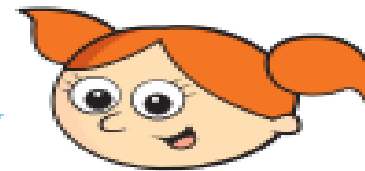
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Hex/ Oct Tues

Daily Maths Meeting



Tues
Place value
assessment

20.9.22

Place value assessment

Place value

A

Name _____

1

The place value grid shows the number 64,305

TTh	Th	H	T	O
10,000	1,000	100		1
10,000	1,000	100		1
10,000	1,000	100		1
10,000	1,000	100		1

How many thousands are there in 64,305?

What is 100 more than 64,305?

What is 10 less than 64,305?

2

Complete the missing numbers.

127,084 = 100,000 + 20,000 + _____ + 80 + 4

_____ = 9,000 + 500 + 3

3

Write 4,035 in words.

Write three million, two hundred and sixty-seven thousand in digits.

4

Label -15 on the number line.

5

Circle the number that rounds to 7 million.

6,456,999 7,999,999 6,555,555 7,555,555

Round 457 to the nearest 10

Round 32,005 to the nearest 10,000

21/9/22

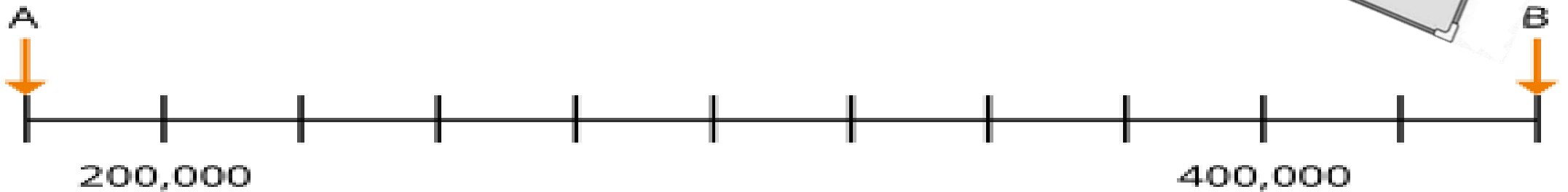
Aim

Weds

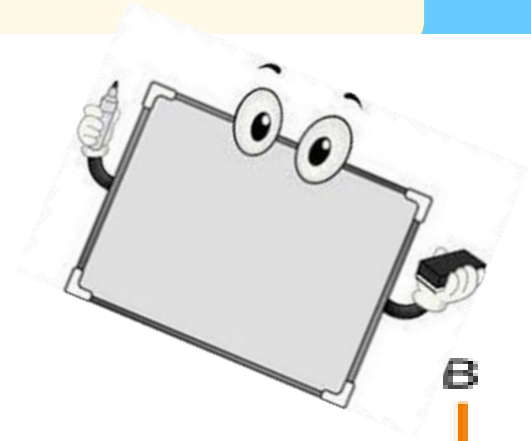
LO: To solve addition and subtraction problems

6

What is the difference in value between A and B?



The difference in value between A and B is



mastery $\longleftrightarrow$ fluency $\longleftrightarrow$ application

Term Autumn 1 Week beginning 20.9.22

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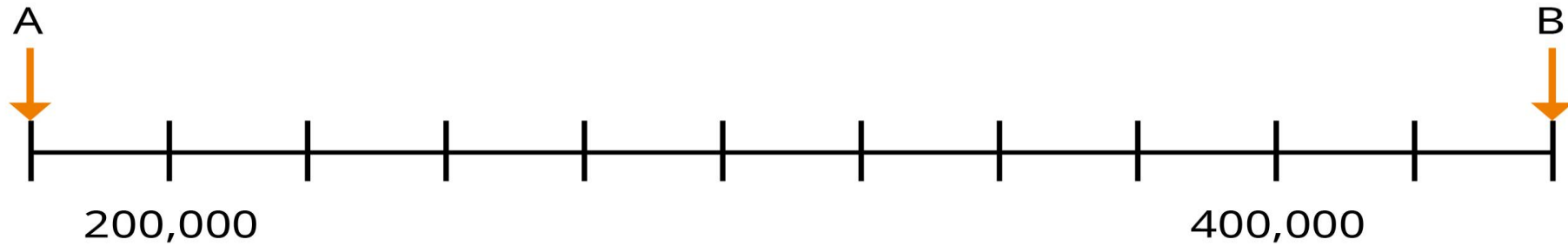


	B	W	S
Add and subtract integers			
Common factors			
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Stem sentences

- In column addition/subtraction, we start with the place value column
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- The first multiple of a number is always _____
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- If the sum of the digits is divisible by, then the number is divisible by
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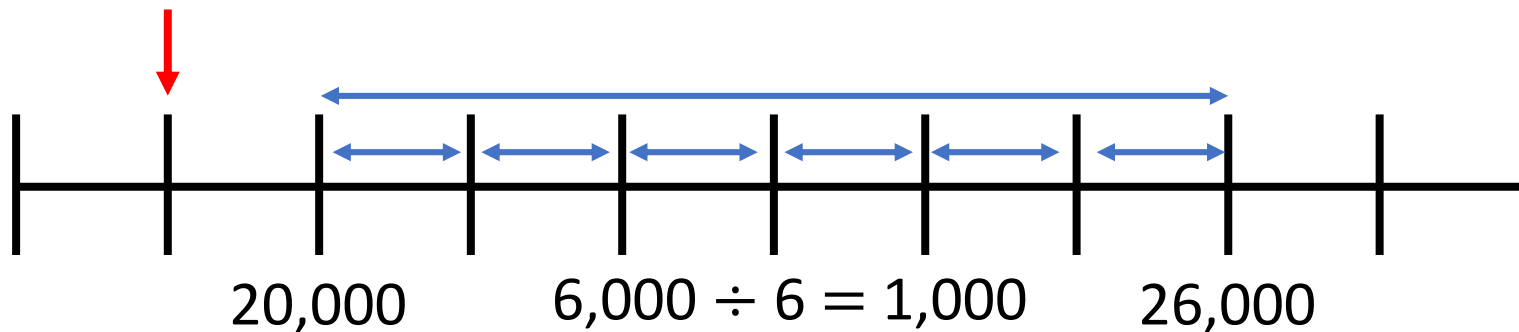
- 6 What is the difference in value between A and B?



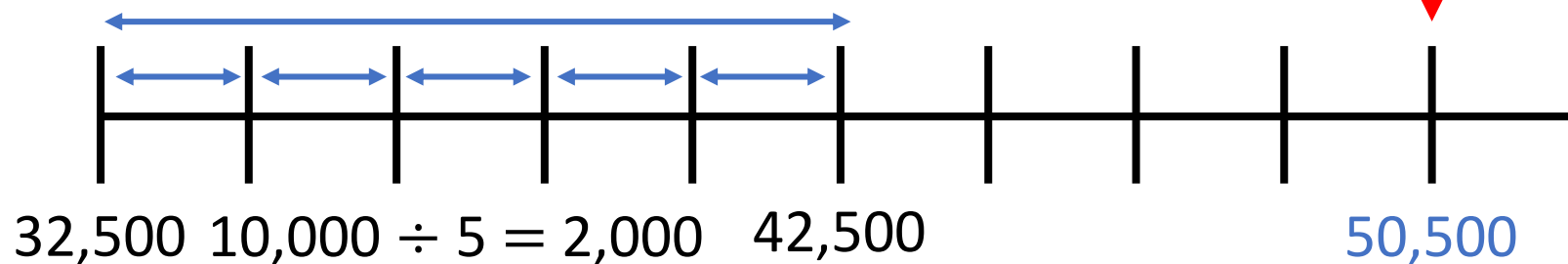
The difference in value between A and B is

19,000 Find the difference between A and B.

A



B



$$50,500 - 19,000 = 50,500 - 20,000 + 1,000$$

31,500

Have a think



altogether

how many

total

What knowledge do we have
already about addition?

increase

join

plus

combined

sum

Crucial vocabulary:

place value

columns

exchange

calculation symbol

inverse

equation

integer

addition

$$9,035,039 + 79,786$$

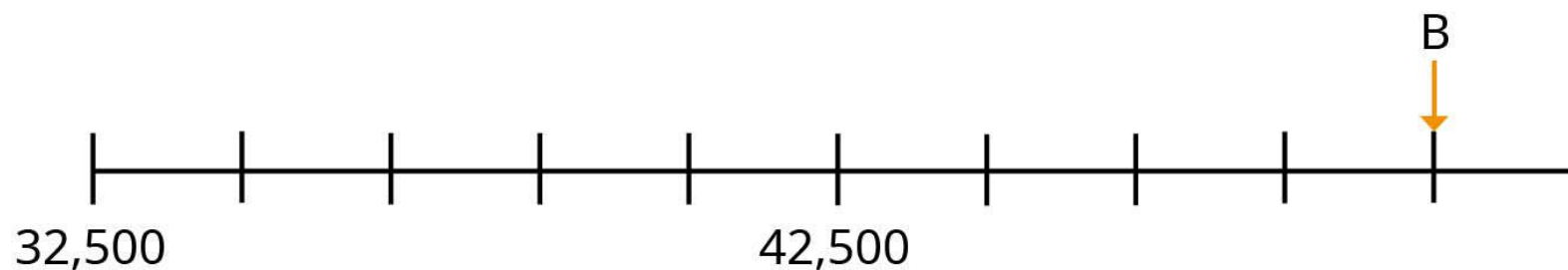
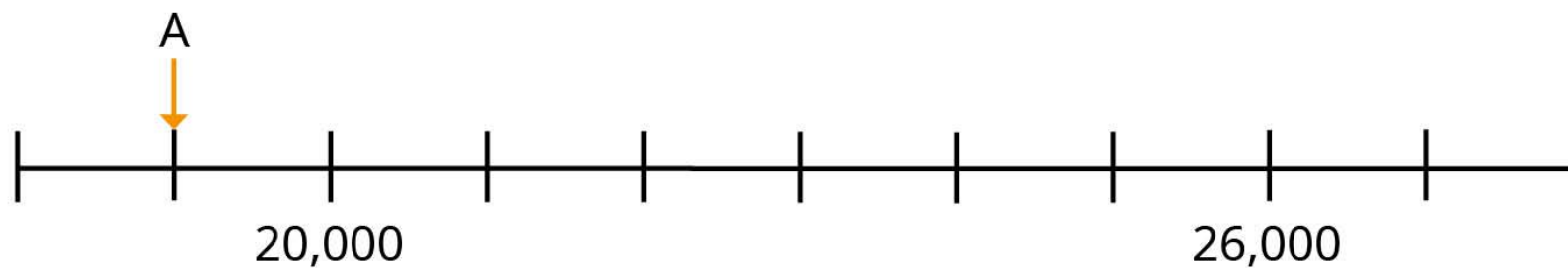
Do this in your book then write three top tips for accurate addition!

$$4,035,745 - 26,726$$

Do this in your book- then write three top tips for accurate subtraction!



Find the difference between A and B.



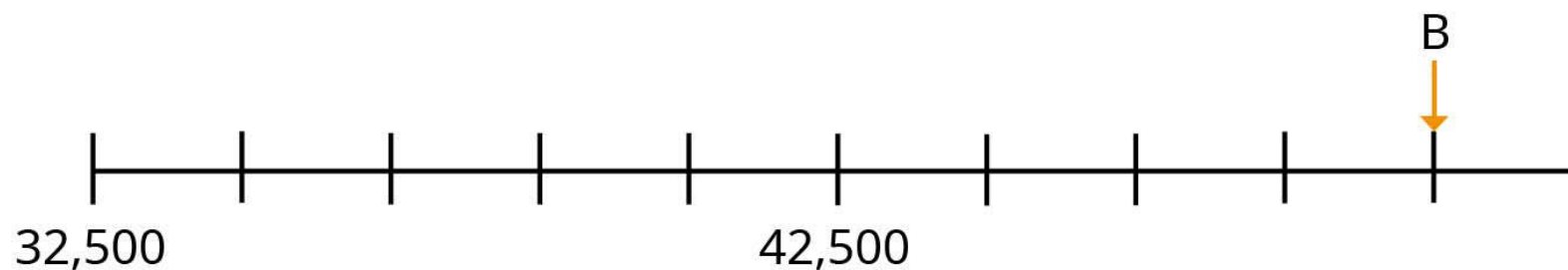
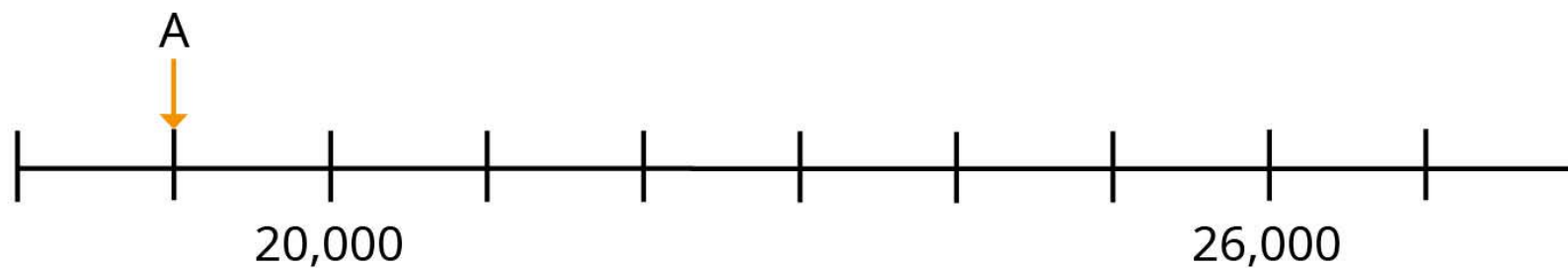
Explain your method to a partner.



Weds



Find the difference between A and B.



Explain your method to a partner.

Weds

4

Fill in the missing numbers.

a)

		8	1		8	5	
	+			0	6		
		9	9	5		8	

Triangles and Squares Guided

Over to you...

1.

$$\begin{array}{r}
 3 \quad \boxed{} \quad 3 \quad 0 \quad \boxed{} \\
 + \quad \quad 6 \quad 0 \quad \boxed{} \quad 3 \\
 \hline
 4 \quad 5 \quad 3 \quad 4 \quad 2 \\
 \hline
 \end{array}$$

2.

$$\begin{array}{r}
 6 \quad 0 \quad \boxed{} \quad 6 \quad 1 \\
 + \quad \boxed{} \quad 1 \quad \boxed{} \quad 0 \\
 \hline
 6 \quad 9 \quad 0 \quad 5 \quad 1 \\
 \hline
 \end{array}$$

3.

$$\begin{array}{r}
 7 \quad 1 \quad \boxed{} \boxed{} \quad 9 \\
 + \quad \boxed{} \quad 8 \quad 8 \quad 0 \\
 \hline
 7 \quad 8 \quad 6 \quad 7 \quad 9 \\
 \hline
 \end{array}$$

1.

$$\begin{array}{r}
 3 \square 3 0 \square \\
 + \quad 6 0 \square 3 \\
 \hline
 4 5 3 4 2
 \end{array}$$

2.

$$\begin{array}{r}
 6 0 \square 6 1 \\
 + \quad \square 1 \square 0 \\
 \hline
 6 9 0 5 1
 \end{array}$$

3.

$$\begin{array}{r}
 7 1 \square \square 9 \\
 + \quad \square 8 8 0 \\
 \hline
 7 8 6 7 9
 \end{array}$$

1.

$$\begin{array}{r}
 3 \square 3 0 \square \\
 + \quad 6 0 \square 3 \\
 \hline
 4 5 3 4 2
 \end{array}$$

2.

$$\begin{array}{r}
 6 0 \square 6 1 \\
 + \quad \square 1 \square 0 \\
 \hline
 6 9 0 5 1
 \end{array}$$

3.

$$\begin{array}{r}
 7 1 \square \square 9 \\
 + \quad \square 8 8 0 \\
 \hline
 7 8 6 7 9
 \end{array}$$

1.

$$\begin{array}{r}
 3 \square 3 0 \square \\
 + \quad 6 0 \square 3 \\
 \hline
 4 5 3 4 2
 \end{array}$$

2.

$$\begin{array}{r}
 6 0 \square 6 1 \\
 + \quad \square 1 \square 0 \\
 \hline
 6 9 0 5 1
 \end{array}$$

3.

$$\begin{array}{r}
 7 1 \square \square 9 \\
 + \quad \square 8 8 0 \\
 \hline
 7 8 6 7 9
 \end{array}$$

Weds-
Triangles and
Squares
Guided

1.

$$\begin{array}{r}
 3 \square 3 0 \square \\
 + \quad 6 0 \square 3 \\
 \hline
 4 5 3 4 2
 \end{array}$$

2.

$$\begin{array}{r}
 6 0 \square 6 1 \\
 + \quad \square 1 \square 0 \\
 \hline
 6 9 0 5 1
 \end{array}$$

3.

$$\begin{array}{r}
 7 1 \square \square 9 \\
 + \quad \square 8 8 0 \\
 \hline
 7 8 6 7 9
 \end{array}$$

1.

$$\begin{array}{r}
 3 \square 3 0 \square \\
 + \quad 6 0 \square 3 \\
 \hline
 4 5 3 4 2
 \end{array}$$

2.

$$\begin{array}{r}
 6 0 \square 6 1 \\
 + \quad \square 1 \square 0 \\
 \hline
 6 9 0 5 1
 \end{array}$$

3.

$$\begin{array}{r}
 7 1 \square \square 9 \\
 + \quad \square 8 8 0 \\
 \hline
 7 8 6 7 9
 \end{array}$$

1.

$$\begin{array}{r}
 3 \square 3 0 \square \\
 + \quad 6 0 \square 3 \\
 \hline
 4 5 3 4 2
 \end{array}$$

2.

$$\begin{array}{r}
 6 0 \square 6 1 \\
 + \quad \square 1 \square 0 \\
 \hline
 6 9 0 5 1
 \end{array}$$

3.

$$\begin{array}{r}
 7 1 \square \square 9 \\
 + \quad \square 8 8 0 \\
 \hline
 7 8 6 7 9
 \end{array}$$

Question	Answer
1	9, 9, 3
2	8, 8, 9
3	7, 9, 6



c)

		8		4	8	5		
	-	3	6				4	
			5	5	5	5	5	

Triangles and Squares Guided

Over to you...

1.

$$\begin{array}{r} 8 \square 1 4 \square \\ - \quad 8 \quad 5 \quad \square \quad 8 \\ \hline 7 \quad 9 \quad 6 \quad 3 \quad 5 \end{array}$$

2.

$$\begin{array}{r} 3 \quad 8 \quad \square \quad 8 \quad 9 \\ - \quad \square \quad 9 \quad \square \quad 0 \\ \hline 3 \quad 4 \quad 6 \quad 0 \quad 9 \end{array}$$

3.

$$\begin{array}{r} 1 \quad 1 \quad \square \square 9 \\ - \quad \square \quad 4 \quad 2 \quad 2 \\ \hline 8 \quad 6 \quad 1 \quad 7 \end{array}$$

Over to you...

1.

$$\begin{array}{r}
 8 \square 1 4 \square \\
 - \quad 8 \quad 5 \quad \square \quad 8 \\
 \hline
 7 \quad 9 \quad 6 \quad 3 \quad 5 \\
 \hline
 \end{array}$$

2.

$$\begin{array}{r}
 3 \quad 8 \quad \square \quad 8 \quad 9 \\
 - \quad \square \quad 9 \quad \square \quad 0 \\
 \hline
 3 \quad 4 \quad 6 \quad 0 \quad 9 \\
 \hline
 \end{array}$$

3.

$$\begin{array}{r}
 1 \quad 1 \quad \square \square \quad 9 \\
 - \quad \square \quad 4 \quad 2 \quad 2 \\
 \hline
 8 \quad 6 \quad 1 \quad 7 \\
 \hline
 \end{array}$$

1.

$$\begin{array}{r}
 8 \square 1 4 \square \\
 - \quad 8 \quad 5 \quad \square \quad 8 \\
 \hline
 7 \quad 9 \quad 6 \quad 3 \quad 5 \\
 \hline
 \end{array}$$

2.

$$\begin{array}{r}
 3 \quad 8 \quad \square \quad 8 \quad 9 \\
 - \quad \square \quad 9 \quad \square \quad 0 \\
 \hline
 3 \quad 4 \quad 6 \quad 0 \quad 9 \\
 \hline
 \end{array}$$

3.

$$\begin{array}{r}
 1 \quad 1 \quad \square \square \quad 9 \\
 - \quad \square \quad 4 \quad 2 \quad 2 \\
 \hline
 8 \quad 6 \quad 1 \quad 7 \\
 \hline
 \end{array}$$

1.

$$\begin{array}{r}
 8 \quad \boxed{8} \quad 1 \quad 4 \quad \boxed{3} \\
 - \quad \quad 8 \quad 5 \quad \boxed{0} \quad 8 \\
 \hline
 7 \quad 9 \quad 6 \quad 3 \quad 5 \\
 \hline
 \end{array}$$

2.

$$\begin{array}{r}
 3 \quad 8 \quad \boxed{5} \quad 8 \quad 9 \\
 - \quad \quad \boxed{3} \quad 9 \quad \boxed{8} \quad 0 \\
 \hline
 3 \quad 4 \quad 6 \quad 0 \quad 9 \\
 \hline
 \end{array}$$

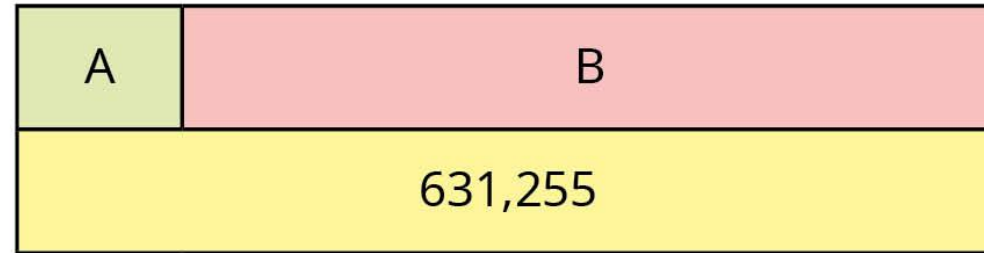
3.

$$\begin{array}{r}
 1 \quad 1 \quad \boxed{0} \quad \boxed{3} \quad 9 \\
 - \quad \quad \boxed{2} \quad 4 \quad 2 \quad 2 \\
 \hline
 8 \quad 6 \quad 1 \quad 7 \\
 \hline
 \end{array}$$

Oct- Guided



Here is a bar model.



- A is an odd integer that rounds to 100,000 to the nearest 10,000
- The sum of the digits of A is 30
- B is an even integer that rounds to 500,000 to the nearest 100,000
- The sum of the digits of B is 10
- A and B are both multiples of 5

What could be the values of A and B?

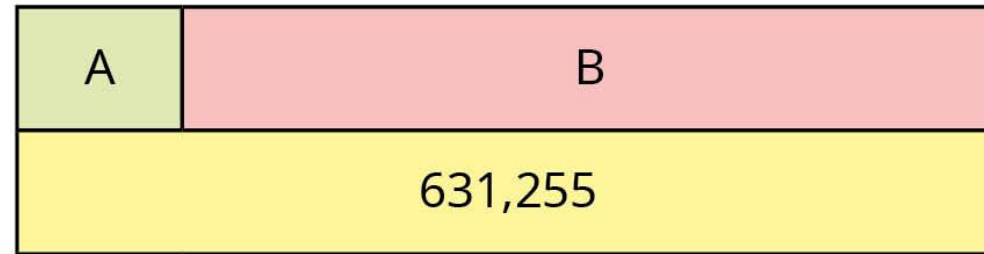
Explain your reasoning to a partner.



Oct- Guided



Here is a bar model.



- A is an odd integer that rounds to 100,000 to the nearest 10,000
- The sum of the digits of A is 30
- B is an even integer that rounds to 500,000 to the nearest 100,000
- The sum of the digits of B is 10
- A and B are both multiples of 5

What could be the values of A and B?

Explain your reasoning to a partner.



Hex/Oct- Guided



$$68.58 + 357.073$$

Explain what you did!

Will you have to exchange? How do you know which columns will be affected?

Does it matter that the two numbers don't have the same amount of digits?

Which number goes on top in the calculation? Does it affect the answer?

Octagons/Hexagons- Roll the dice find two numbers to add.
Line up the columns!

£47,854	£873.45	£567.89	£345.33	£334.45	£2124.50
£665.43	£342.56	£765.44	£245.67	£886.44	£3467.80
£5673	£455.67	£7897	£233.32	£4433.2	£783.09
£776.55	£6679	£689.07	£564.80	£3346	£1245.76
£115.89	£4225.50	£4323.22	£7645	£4678.76	£2362.11
£5687	£776.54	£364.32	£698.75	£46.65	£33.77

Octagons/Hexagons- Roll the dice find two numbers to add.
Line up the columns!

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£665.43	£342.56	£765.44	£245.67	£886.44	£3467.80
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£115.89	£4225.50	£4323.22	£7645	£4678.76	£2362.11
£5687	£776.54	£364.32	£698.75	£46.65	£33.77

A four bedroom house costs £450,000
A three bedroom house costs £201,000 less.
How much does the three bedroom house cost?
What method did you use to find the answer?

Can you make an exchange between columns?

How can we find the missing digits? Can we use the inverse?

Is the column method always the best method?

When should we use mental methods?

Squares

1. $4.5g + 57.56g =$

2. $23.65m + 64.88m =$

3. $593.85m + 79.7m =$

4. $67.54cm + 35.84cm =$

5. $3.86cm + 49.28cm =$

6. $45.1kg + 196.3kg =$

7. $25.8kg + 6.48kg =$

8. $£7.85 + £72.82 =$

9. $£96.70 + £68.50 =$

10. $£96.32 + £87.50 =$

11. $£25.67 + £68.57 =$

12. $£29.40 + £3.86 =$

1. $4.5g + 57.56g =$

2. $23.65m + 64.88m =$

3. $593.85m + 79.7m =$

4. $67.54cm + 35.84cm =$

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7. $25.8kg + 6.48kg =$

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9. $£96.7 + £68.5 =$

10. $£96.32 + £87.5 =$

11. $£25.67 + £68.57 =$

12. $£29.40 + £3.86 =$

Do now:

- | | | | | |
|--|--|--|--|--|
| <ul style="list-style-type: none">Round the following number to the nearest tenth:
0.286Work out the missing number.
362.29 rounded to nearest _____ is 362A number rounded to the nearest 100 is 600. What is the smallest possible number it could be? | <ul style="list-style-type: none">Round the following number to the nearest tenth:
0.286Work out the missing number.
362.29 rounded to nearest _____ is 362A number rounded to the nearest 100 is 600. What is the smallest possible number it could be? | <ul style="list-style-type: none">Round the following number to the nearest tenth:
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|--|--|--|--|--|

Reasoning

- Abdul says "If I add any two 4 digit numbers together it will make a 5 digit number." Do you agree? Explain why.
- Katie was given the calculation below
 $47326 - 1900 =$
 She said "I will just take off 2000 then subtract another 100 so my answer is 45126." Is she correct? Would you use her method? Explain your answer.
- Nancy is using the inverse operation to solve calculations. She is completing the calculation below:
 $\underline{\hspace{2cm}} - 3291 = 5382$
 She says "I can turn the calculation around to get the correct answer."
 She does the following:
 $5382 - 3291 =$
 Is she correct? Why?

Reasoning

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Reasoning

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 $\underline{\hspace{2cm}} - 3291 = 5382$
 She says "I can turn the calculation around to get the correct answer."
 She does the following:
 $5382 - 3291 =$
 Is she correct? Why?

Daily Maths Meeting



Weds

Improper and Mixed Number Fraction Count



Count forwards along the fraction counting stick in mixed numbers.



Count backwards along the fraction counting stick in improper fractions.

Improper and Mixed Number Fraction Count



Count forwards along the fraction counting stick in mixed numbers.



Count backwards along the fraction counting stick in improper fractions.

Revision of fractions

Fractions

Add together
these fractions:

$$\frac{5}{12} + \frac{1}{12}$$

Reveal answer

Reasoning

$\frac{3}{8}$ is equivalent to $\frac{6}{16}$.

Is Henry correct?
Explain your reasoning.



Same Denominators



In this fraction addition, both the fractions have the **same denominator**.

$$\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$$

To solve the calculation, the **denominator stays the same**, and the **numerators are added together**.

Same Denominators



In this fraction addition, both the fractions have the **same denominator**.

This is the same answer written as a mixed number.

$$\frac{5}{3} + \frac{6}{3} = \frac{11}{3} = 3\frac{2}{3}$$



This answer is an improper fraction. The denominator tells us the whole is made of three parts.

Improper and Mixed Number Fraction Count



Count forwards along the fraction counting stick in mixed numbers.



Count backwards along the fraction counting stick in improper fractions.

22/9/22

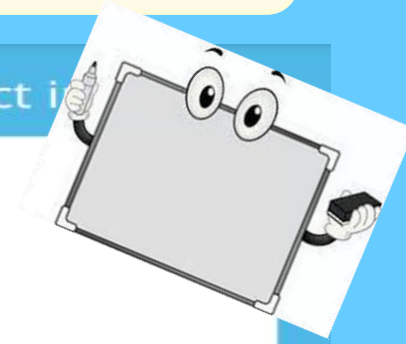
Aim

Thurs

LO: To find common factors of numbers

True or False ?

Add and subtract in



Revision!

Adding two 4-digit numbers will always give you a 4-digit answer.

I know this because....prove it!

False

For example

$$5,630 + 5,000 = 10,630$$



1) _____ $\times$ 7 = 56

2) 9 $\times$ _____ = 108

3) Find all the factors of 24

4) Find all the factors of 11

1) 8 $\times 7 = 56$

2) $9 \times \underline{12} = 108$

3) Find all the factors of 24
1, 2, 3, 4, 6, 8, 12, 24

4) Find all the factors of 11
1, 11

mastery ↔ fluency ↔ application

Term Autumn 1 Week beginning 20.9.22

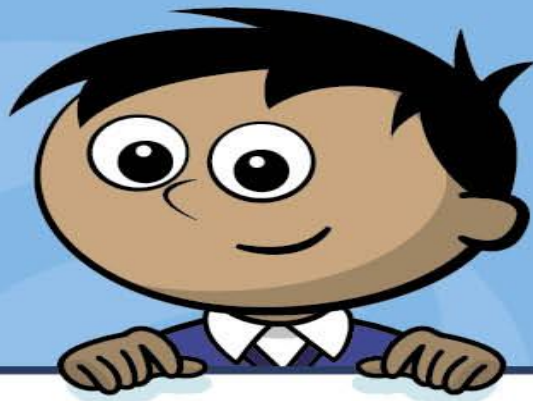
Block Number: Addition, subtraction, multiplication and division

Key vocabulary place value columns
exchange calculation symbol inverse
equation integer addition subtraction

	B	W	S
Add and subtract integers			
Common factors			
Common multiples			
Rules of divisibility			
Primes to 100			
Square and cube numbers			
Multiply up to a 4-digit number by a 2-digit number			
Solve problems with multiplication			

Stem sentences

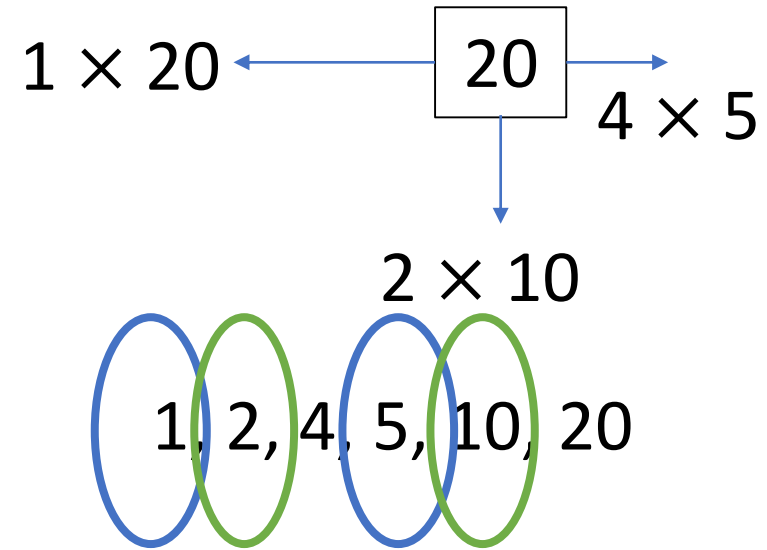
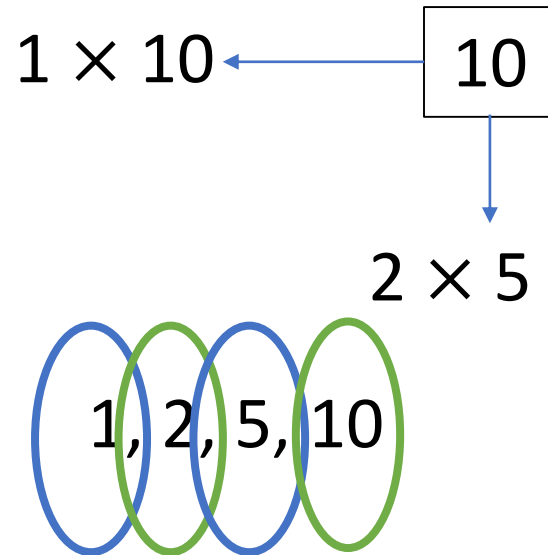
- In column addition/subtraction, we start with the place value column
- The _____ is in the column. It represents _____
- is a factor of all numbers.
- The largest factor of a number is always _____
- _____ is a factor of because is in the times-table
- The first multiple of a number is always _____
- is a multiple of because $\times =$
- is a common multiple of and
- If a number is divisible by and, then the number must also be divisible by
- If the sum of the digits is divisible by, then the number is divisible by
- A number is divisible by if its ones digit is



Let's learn

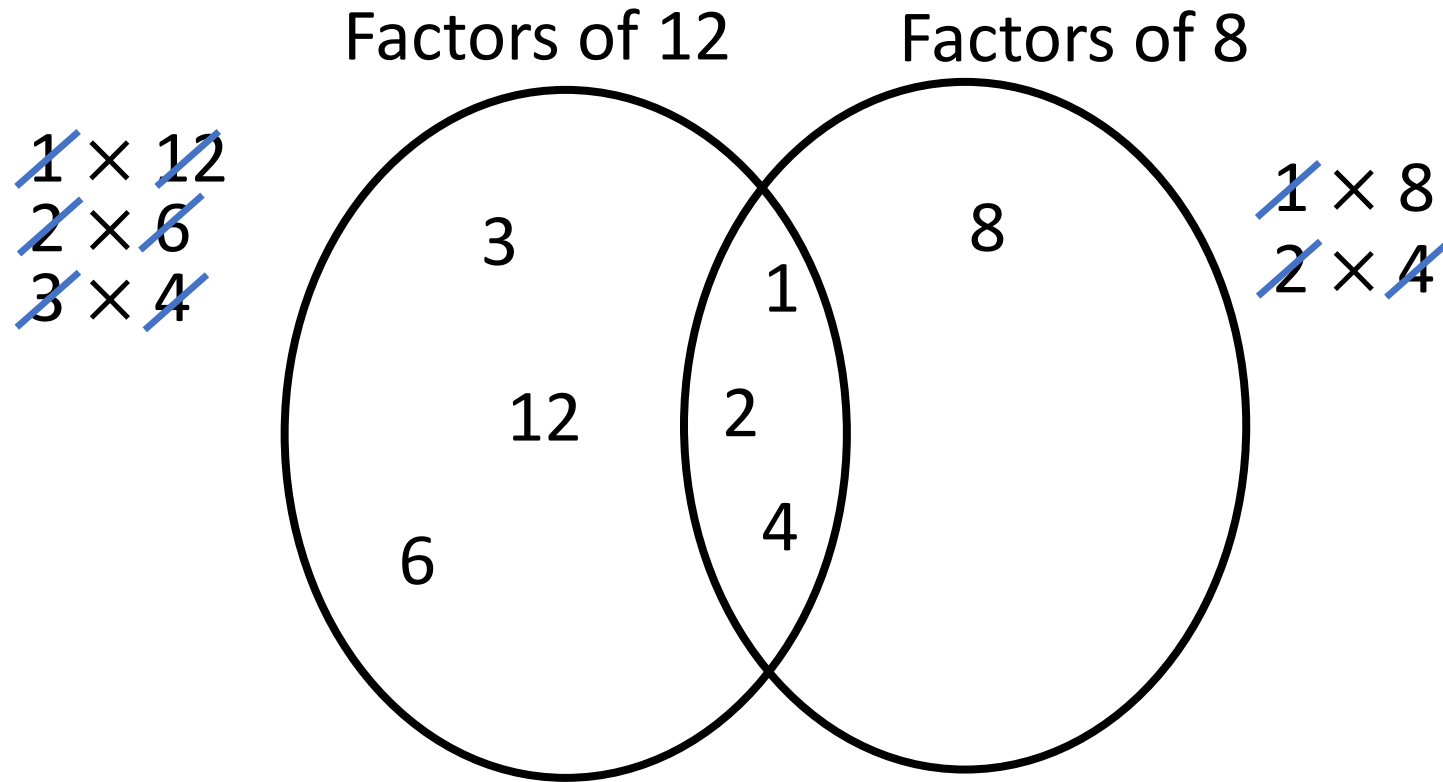
Get ready for today's
new learning.

Find all the **common factors** of 10 and 20



Common factors: 1, 2, 5, 10

Complete the sorting diagram



Have a think 



Your turn





Common factors

- 1** a) Use 18 counters or cubes.

Make as many different arrays as possible, using all the cubes or counters.

Use your arrays to help you list the factors of 18

The factors of 18 are _____



1

b) Use 24 counters or cubes.

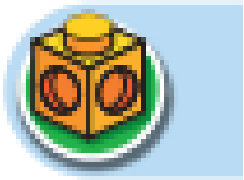
Make as many different arrays as possible, using all the cubes or counters.

Use your arrays to help you list the factors of 24

The factors of 24 are _____

c) What are the common factors of 18 and 24?

d) What are the common factors of 16 and 32?



1

a) Use 18 counters or cubes.

Make as many different arrays as possible, using all the cubes or counters.

Use your arrays to help you list the factors of 18

b) Use 24 counters or cubes.

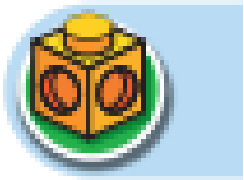
Make as many different arrays as possible, using all the cubes or counters.

Use your arrays to help you list the factors of 24

c) What are the common factors of 18 and 24?

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Thurs Tri Sq



1

a) Use 18 counters or cubes.

Make as many different arrays as possible, using all the cubes or counters.

Use your arrays to help you list the factors of 18

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c) What are the common factors of 18 and 24?

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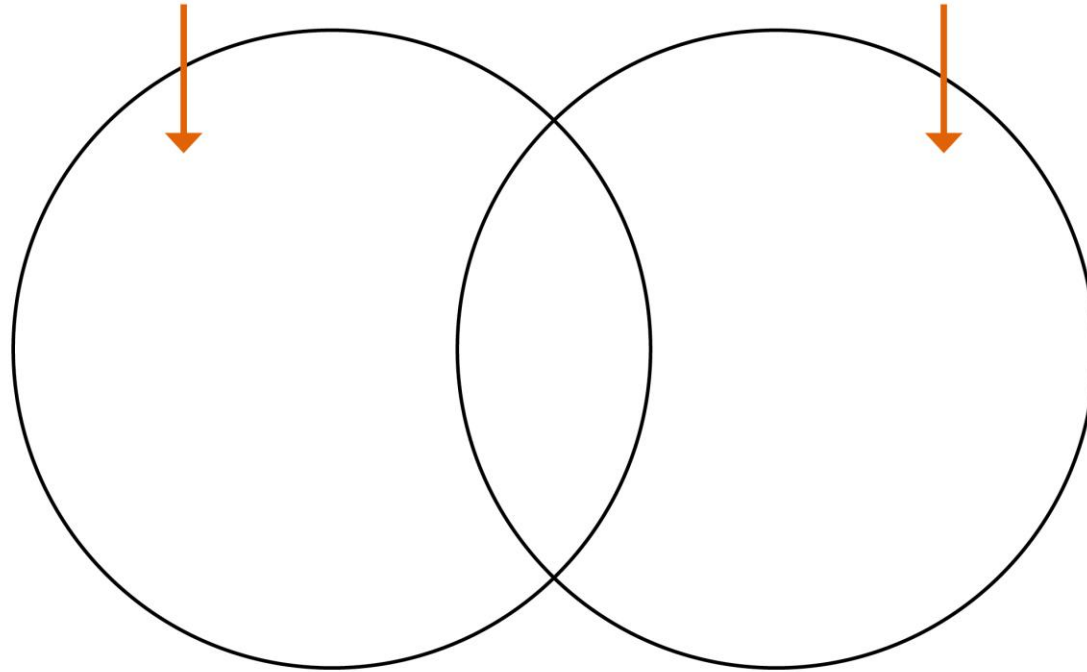
Thurs Tri Sq

- 2 Write the numbers in the sorting diagram.

1 2 3 4 5 6 8 12 15 24

factors of 15

factors of 24



Complete the sentence.

The common factors of 15 and 24 are _____

Oct
Hex



Quick recall!

Introduction

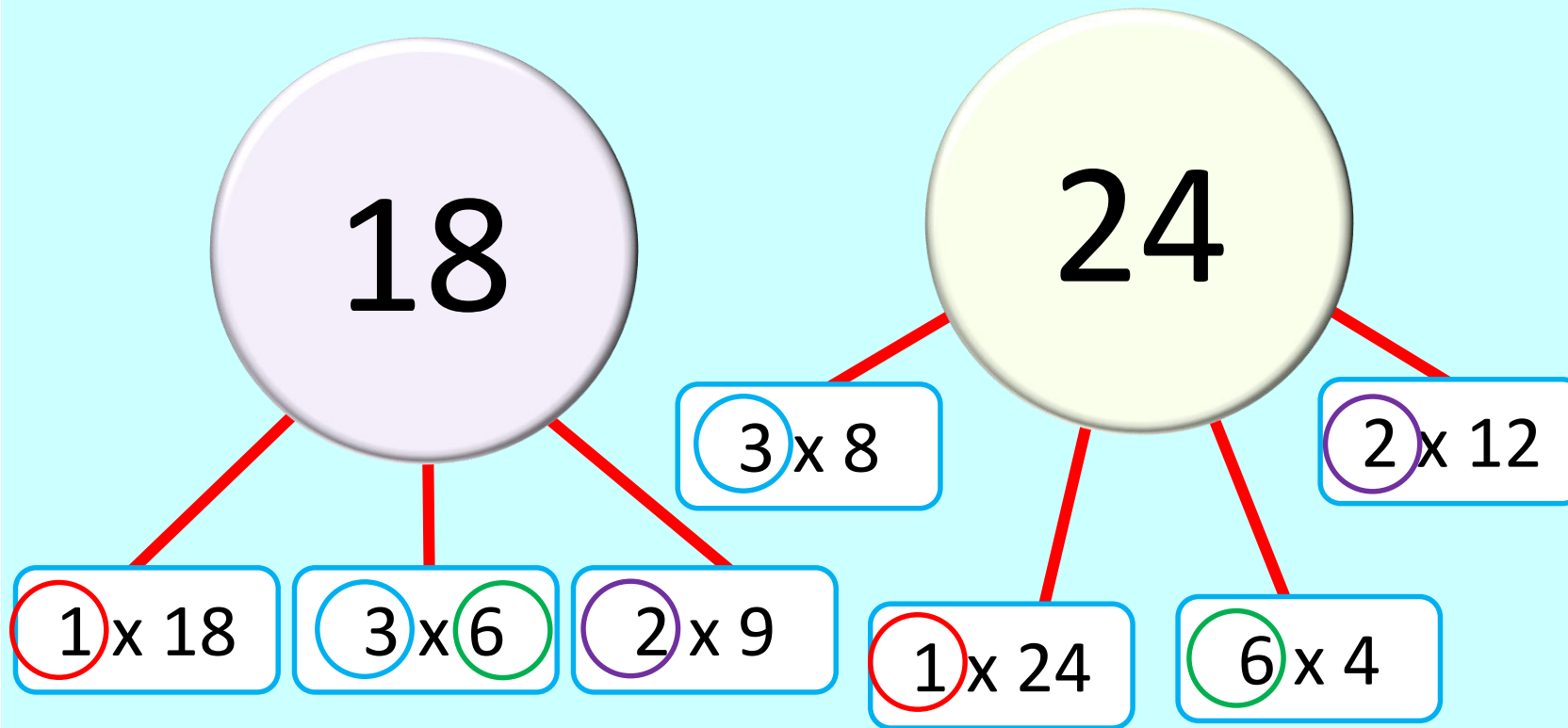
Let's try finding some more common factors. This time try working in a pair to find the common factors for:

18

24

Introduction

For 18 and 24, the common factors are:



Oct Hex Thurs

- Decide if each statement is true or false.

5 is a factor of both 95 and 75

3 is a common factor of 45 and 54

4 is not a common factor of 56 and 80

- Here is a table for sorting numbers.

Write one number in each box.

	Factor of 6	Not a factor of 6
Factor of 9		
Not a factor of 9		

Compare answers with a partner.

- Decide if each statement is true or false.

5 is a factor of both 95 and 75
3 is a common factor of 45 and 54
4 is not a common factor of 56 and 80

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Oct
Hex Thurs

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- Here is a table for sorting numbers.
Write one number in each box.

Factor of 6	Not a factor of 6
Factor of 9	
Not a factor of 9	

Compare answers with a partner.



3 Find the common factors of each pair of numbers.

a) 12 and 20

b) 16 and 25

c) 20 and 50

d) 20 and 60

Oct Hex- Guided

Find a common factor of 80, 160 and 300 that is greater than 15 20

80	160	300
1×80	2×80	$\times 80$
2×40	4×40	$\times 40$
4×20	8×20	15×20
5×16	10×16	$\times 16$
8×10		

Have a think 



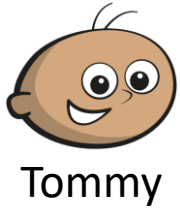
4

a) Complete the table.

Factor pairs of 50	Factor pairs of 75	Factor pairs of 100
1×50 2×25 5×10	$1 \times$	

b) What are the common factors of 50, 75 and 100?

Oct Hex

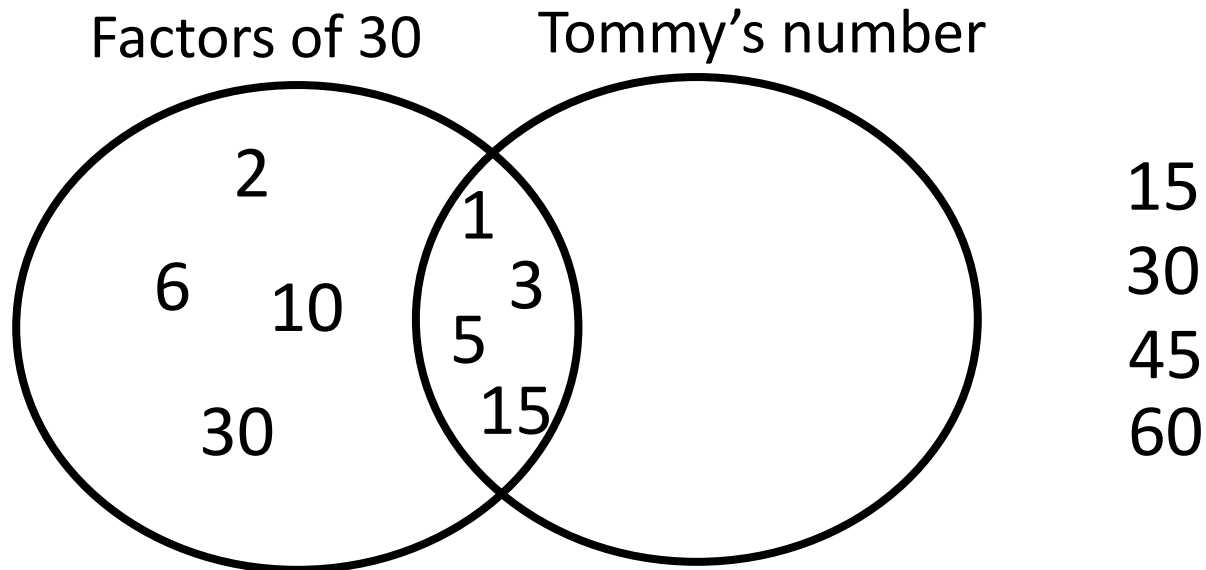


I'm thinking of a 2-digit number between 20 and 50



Whitney

My number is 30
The common factors of 30 and Tommy's number are 1, 3, 5 and 15



What is Tommy's number?

Hex/ Oct

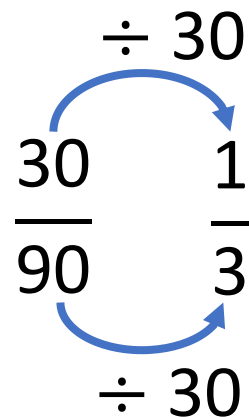
Can you use common factors to simplify this fraction?

$$\begin{array}{ccc} & \div 2 & \\ \text{18} & \curvearrowright & \text{9} \\ \hline \text{50} & & \text{25} \\ & \curvearrowleft & \\ & \div 2 & \end{array}$$

Factors of 18: 1, 2, 3, 6, 9, 18

Factors of 50: 1, 2, 5, 10, 25, 50

Can you use common factors to
simplify this fraction?

$$\begin{array}{r} \div 30 \\ \frac{30}{90} \end{array} \quad \begin{array}{r} 1 \\ 3 \\ \div 30 \end{array}$$


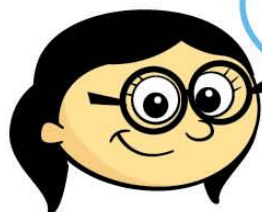
Factors of 30: 1, 2, 3, 5, 6, 10, 15, 30

Factors of 90: 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90

Have a think



7



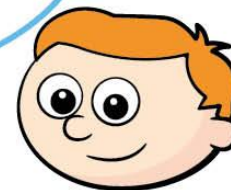
Annie

I am thinking of a 2-digit number.



Dexter

My number has a factor of 7 in common with Annie's number.



Ron

The common factors of my number and Annie's number are 1, 5 and 10

What number is Annie thinking of?



Question	Answer																		
1	a) 1, 2, 3, 6, 9, 18 b) 1, 2, 3, 4, 6, 8, 12, 24 c) 1, 2, 3, 6 d) 1, 2, 4, 6, 16																		
2	factors of 15 factors of 24 The common factors of 15 and 24 are 1 and 3																		
3	a) 1, 2, 4 b) 1 c) 1, 2, 5, 10 d) 1, 2, 4, 5, 10, 20																		
4	a) <table><tr><th>Factor pairs of 50</th><th>Factor pairs of 75</th><th>Factor pairs of 100</th></tr><tr><td>1 × 50</td><td>1 × 75</td><td>1 × 100</td></tr><tr><td>2 × 25</td><td>3 × 25</td><td>2 × 50</td></tr><tr><td>5 × 10</td><td>5 × 15</td><td>4 × 25</td></tr><tr><td></td><td></td><td>5 × 20</td></tr><tr><td></td><td></td><td>10 × 10</td></tr></table> b) 1, 5, 25	Factor pairs of 50	Factor pairs of 75	Factor pairs of 100	1 × 50	1 × 75	1 × 100	2 × 25	3 × 25	2 × 50	5 × 10	5 × 15	4 × 25			5 × 20			10 × 10
Factor pairs of 50	Factor pairs of 75	Factor pairs of 100																	
1 × 50	1 × 75	1 × 100																	
2 × 25	3 × 25	2 × 50																	
5 × 10	5 × 15	4 × 25																	
		5 × 20																	
		10 × 10																	
5	60, 90, 180																		

Plenary

Quick fire common factors!

27

6

ANSWER

Plenary

Quick fire common factors!

30

20

ANSWER

Plenary

Quick fire common factors!

6

12

ANSWER

Plenary

Quick fire common factors!

3

7

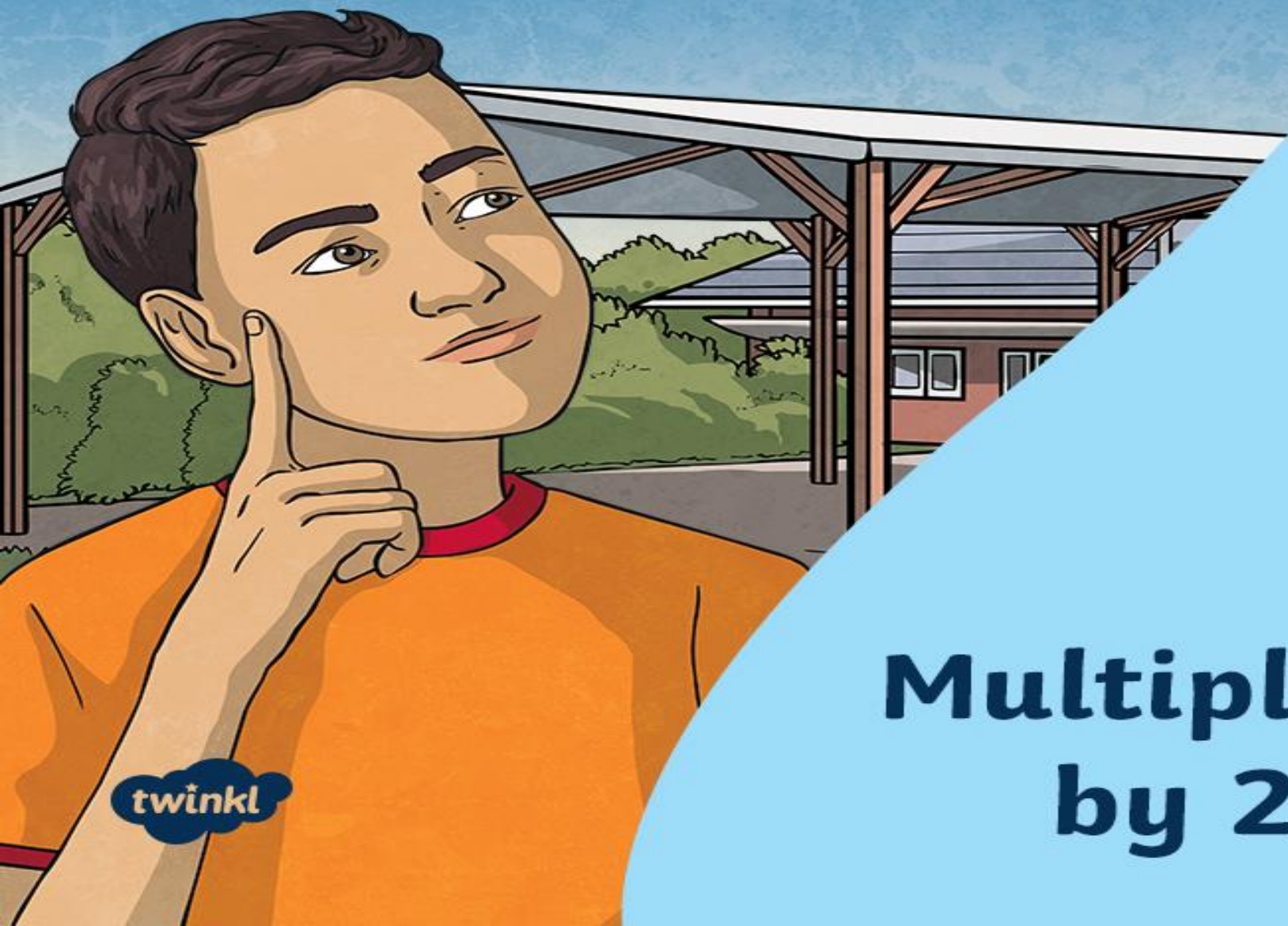
1! They are both prime numbers!

Daily Maths Meeting



Thurs

Diving into Mastery

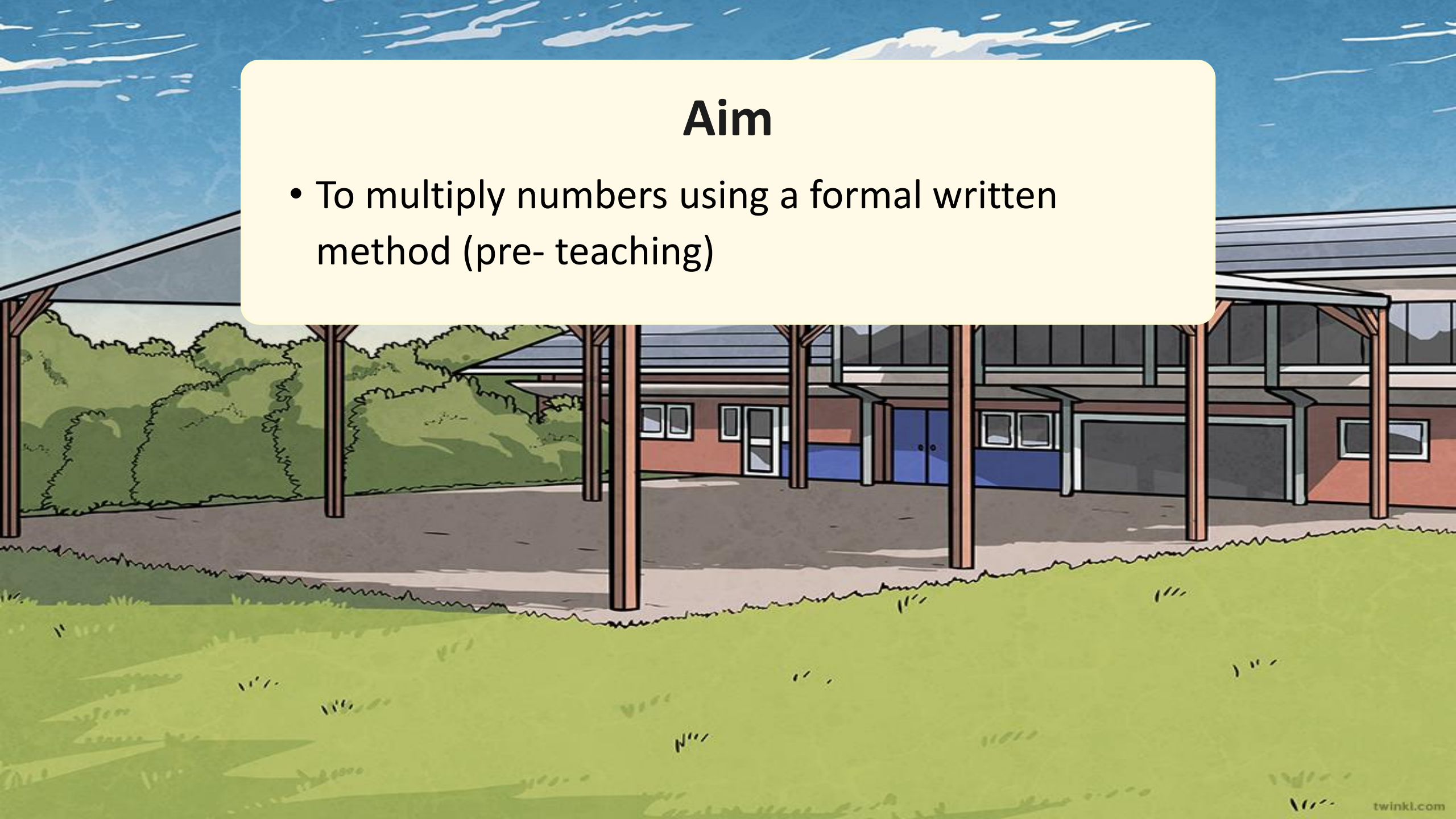


Multiply 2 Digits by 2 Digits

twinkl

Aim

- To multiply numbers using a formal written method (pre- teaching)



Multiply 2 Digits by 2 Digits

Diving



Complete this calculation.

		3	2
	×	4	3
		9	6
1	2	8	0
1	3	7	6

1

(32 × 3)

(32 × 40)



Multiply 2 Digits by 2 Digits

Diving



Set this calculation out and find the answer.

$$52 \times 47 =$$

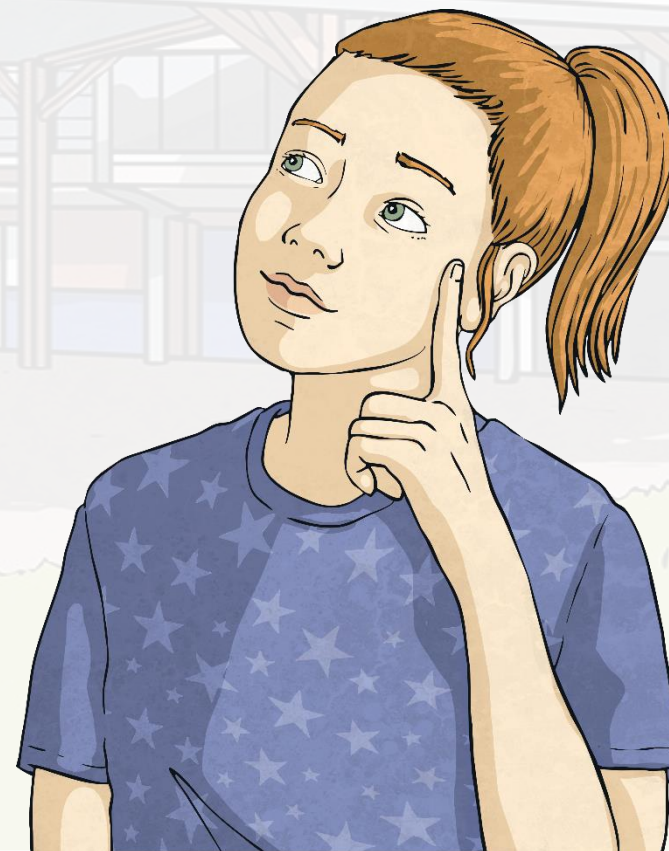
		5	2
	×	4	7
	3	6	4
2	0	8	0
2	4	4	4

1

$$(52 \times 7)$$

$$(52 \times 40)$$

1



Complete these calculations.



a)

		3	2
	×	4	3
		9	6

(32 × 3)

b)

		5	4
	×	2	7

(54 × 7)

(54 × 20)

Multiply 2 Digits by 2 Digits

Deeper



Mohammed has been practising long multiplication. For each question, can you spot his mistake and explain where he has gone wrong?

	3	5
×	2	6
2	1 3	0
	7 1	0
2	8	0

Mohammed did not use 0 as a placeholder in the tens column when he calculated 20×5 .

		4	5
	×	7	3
	1	3 1	5
3	1 3	5	0
3	5	9	5

Mohammed should not have added in the regrouped digits during the final step of the calculation.

mastery $\longleftrightarrow$ fluency $\longleftrightarrow$ application

Term Autumn 1 Week beginning 20.9.22

Block Number: Addition, subtraction, multiplication and division

Key vocabulary place value columns
exchange calculation symbol inverse
equation integer addition subtraction

	B	W	S
Add and subtract integers			
Common factors			
Common multiples			
Rules of divisibility			
Primes to 100			
Square and cube numbers			
Multiply up to a 4-digit number by a 2-digit number			
Solve problems with multiplication			

Stem sentences

- In column addition/subtraction, we start with the place value column
- The _____ is in the column. It represents _____
- is a factor of all numbers.
- The largest factor of a number is always _____
- _____ is a factor of because is in the times-table
- The first multiple of a number is always _____
- is a multiple of because $\times =$
- is a common multiple of and
- If a number is divisible by and, then the number must also be divisible by
- If the sum of the digits is divisible by, then the number is divisible by
- A number is divisible by if its ones digit is