

Welcome and thank you for coming.



St. Teresa's
R.C. Primary School

Some fun
warm
ups...

				16	 =
				14	 =
				16	 =
				20	
17	15	17	17		

Year 5

Maths Workshop

November 2022





St. Teresa's
R.C. Primary School

Why...

...do children need to be able to problem solve and reason?

The national curriculum states that ...

'...all pupils should be able to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.'

And

'...all pupils should solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.'

What is the impact of being able to problem solve and reason?



Increased emphasis in national curriculum

Can help consolidate and reinforce skills leading to deeper understanding

Makes mathematics interesting and enjoyable

It teaches thinking, flexibility and creativity

It teaches resilience

It is the essence of being a mathematician and what makes mathematics so important



End of Year 4 results.

	Average total marks
Paper 1 - arithmetic	84.1%
Paper 2 - reasoning	66.5%
Paper 3 - reasoning	64.2%

Diamond Final

Times Tables Tests

Name: _____

Number of Questions: 40

Testing: 2x, 3x, 4x, 5x, 6x, 7x, 8x, 9x, 10x, 11x, 12x (with inverse)

Times Tables Tracker				All combined	DONE!
.....					
Bronze	10	5		5 and 10	
Silver	2	4	8	2, 4, 8, 5 and 10	
Gold	3	6	9	3, 6, 9, 2, 4, 8, 5 and 10	
Platinum	7			7, 3, 6, 9, 2, 4, 8, 5 and 10	
Diamond	11	12		All 1 to 12	

$7 \times 2 = \underline{\quad}$

$5 \times 6 = \underline{\quad}$

$30 \div 10 = \underline{\quad}$

$7 \times 1 = \underline{\quad}$

$120 \div 12 = \underline{\quad}$

$30 \div 5 = \underline{\quad}$

$30 \div 6 = \underline{\quad}$

$5 \times 2 = \underline{\quad}$

$14 \div 7 = \underline{\quad}$

$6 \times 2 = \underline{\quad}$

$4 \times 5 = \underline{\quad}$

$2 \times 4 = \underline{\quad}$

$12 \times 11 = \underline{\quad}$

$3 \times 7 = \underline{\quad}$

$11 \times 6 = \underline{\quad}$

$5 \times 9 = \underline{\quad}$

$10 \times 11 = \underline{\quad}$

$8 \times 11 = \underline{\quad}$

$1 \times 6 = \underline{\quad}$

$9 \times 10 = \underline{\quad}$

$7 \times 11 = \underline{\quad}$

$96 \div 8 = \underline{\quad}$

$11 \times 3 = \underline{\quad}$

$9 \times 5 = \underline{\quad}$

$11 \times 9 = \underline{\quad}$

$24 \div 8 = \underline{\quad}$

$6 \times 10 = \underline{\quad}$

$5 \div 5 = \underline{\quad}$

$3 \times 3 = \underline{\quad}$

$40 \div 8 = \underline{\quad}$

$6 \times 2 = \underline{\quad}$

$5 \times 12 = \underline{\quad}$

$10 \div 2 = \underline{\quad}$

$7 \times 7 = \underline{\quad}$

$6 \times 1 = \underline{\quad}$

$72 \div 6 = \underline{\quad}$

$7 \times 8 = \underline{\quad}$

$12 \times 7 = \underline{\quad}$

$12 \times 4 = \underline{\quad}$

$48 \div 12 = \underline{\quad}$



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R.C. Primary School

$$C \times B = FB$$

$$F \times B = GK$$

$$D \times B = FK$$

$$A \times B = JB$$

$$G \times B = JK$$

$$B \times B = GB$$

$$H \times B = AB$$

$$J \times B = B$$

$$E \times B = AK$$

**Can you work out
what multiplication
set (times tables set)
this represents?**

How do you know?

What does problem solving look like?



- Logic puzzles
- Finding rules and describing patterns
- Finding all possibilities
- Real-life multi-step word problems
- Reasoning problems e.g.
 - Always, sometimes, never true?
 - Odd one out
 - True or false
 - Give an example of ... and another, and another
 - Would you rather?

Miss McCoy's class are selling cakes for charity. Each cake costs £2. They have set out their cakes on the cake stand. There are 9 rows of cakes and each row has 7 cakes. They sell all the cakes. How much money have they made?

Problem 1



What is the question asking you to do?
How many steps will it take to answer this question?

Miss McCoy's class are selling cakes for charity.

Each cake costs £2.

They have set out their cakes on the cake stand.

There are 9 rows of cakes and each row has 7 cakes.

They sell all the cakes. How much money have they made?

There are **two steps** to this problem. 

Step 1: We need to work out how many cakes there are.

Step 2: We then need to multiply this number by 2 as each cake costs £2.

The calculation we need to do is:

$$9 \times 7$$

Then multiply that answer x 2

Miss McCoy's class are selling cakes for charity.

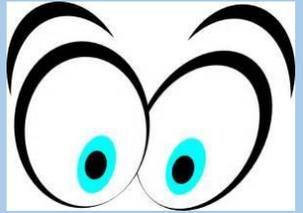
Each cake costs £2.

They have set out their cakes on the cake stand.

There are 9 rows of cakes and each row has 7 cakes.

They sell all the cakes. How much money have they made?

Calculating the answer



We can use a mixture of **mental** and **written strategies** to answer this problem depending on how confident we are.

Remember, it's always a good idea to check our answer using a written method in case we make an error.

Miss McCoy's class are selling cakes for charity.

Each cake costs £2.

They have set out their cakes on the cake stand.

There are 9 rows of cakes and each row has 7 cakes.

They sell all the cakes. How much money have they made?



The first calculation we need to do is: **9×7**

We could use our knowledge of the multiples of 9.

Or we can use our multiples of 10 and adjust:

10×7 and then subtract 7.

$$10 \times 7 = 70$$

$$70 - 7 = 63$$

Miss McCoy's class are selling cakes for charity.

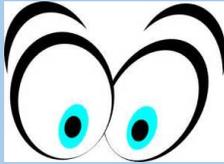
Each cake costs £2.

They have set out their cakes on the cake stand.

There are 9 rows of cakes and each row has 7 cakes.

They sell all the cakes. How much money have they made?

What's our second step?



Remember, our original calculation was:

9 x 7 and then x 2

We know they sold the cakes for £2 each.

We need to calculate 63×2 (or double 63).

Miss McCoy's class are selling cakes for charity. Each cake costs £2.

They have set out their cakes on the cake stand.

There are 9 rows of cakes and each row has 7 cakes.

They sell all the cakes. How much money have they made?

Our final step is: **63 x 2**



Written method

$$\begin{array}{r} 63 \\ \times \quad 2 \\ \hline 126 \end{array}$$

Answer: The children make £126 for charity.

Miss McCoy's class are selling cakes for charity.

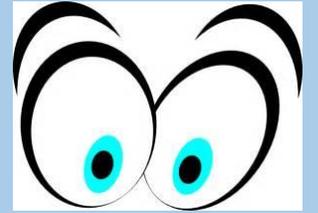
Each cake costs £2.

They have set out their cakes on the cake stand.

There are 9 rows of cakes and each row has 7 cakes.

They sell all the cakes. How much money have they made?

Final check

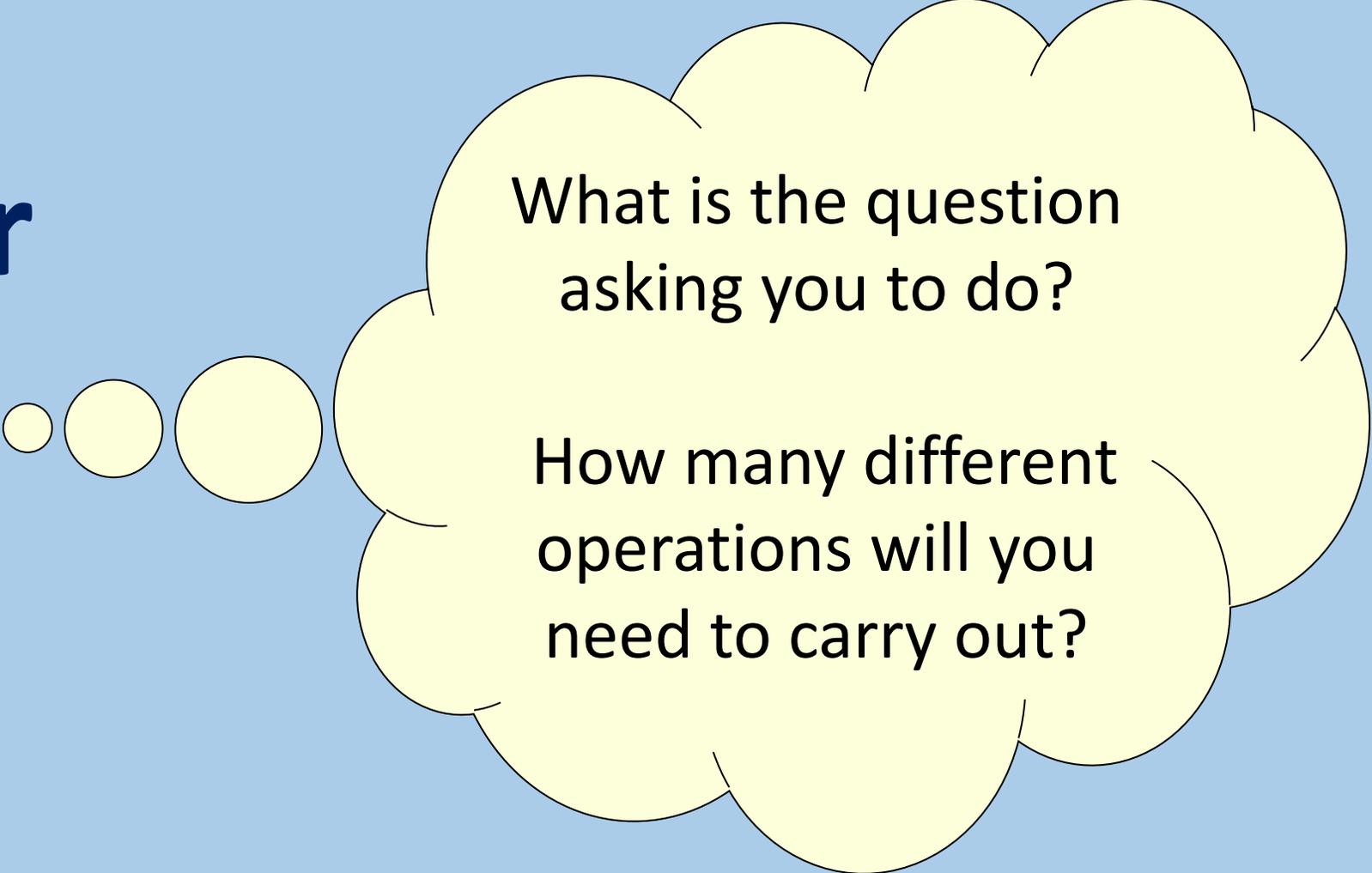


Now go back and read the question again. Is our answer **reasonable** and **have we answered the question?**

Answer: The children have made £126 for charity.

Your turn

Remember



What is the question asking you to do?

How many different operations will you need to carry out?

Method

1. What is the key information?
2. What is the question asking us to do?

In a tennis club there are **217 boxes of tennis balls**.

There are **6 balls in every box**.

Another **12 boxes are delivered**.

How many **tennis balls** are there **altogether**?

There are **three steps** to this problem.

Step 1: Calculate how many balls there are to begin with

Step 2: Calculate how many extra balls are delivered

Step 3: Calculate the amount of tennis balls altogether.

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Step 1: Calculate how many balls there are to begin with

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In a tennis club there are **217 boxes of tennis balls.**

There are **6 balls in every box.**

Another **12 boxes are delivered.**

How many **tennis balls** are there **altogether?**

The first calculation we need to do is: **6×217**

We could use a formal written method to solve this

Written method

$$\begin{array}{r} 217 \\ \times \quad 6 \\ \hline 1302 \\ \hline 14 \end{array}$$

Why is this our first calculation?

There are **three steps** to this problem.

Step 1: Calculate how many balls there are to begin with

Step 2: Calculate how many extra balls are delivered

Step 3: Calculate the amount of tennis balls altogether.

In a tennis club there are **217 boxes of tennis balls.**

There are **6 balls in every box.**

Another **12 boxes are delivered.**

How many **tennis balls** are there **altogether?**

The second calculation we need to do is: **6×12** .

We could use a formal written method to solve this or use our times tables knowledge

Written method

$$\begin{array}{r} 12 \\ \times \quad 6 \\ \hline 72 \end{array}$$

Why is this our second calculation?

There are **three steps** to this problem.

Step 1: Calculate how many balls there are to begin with

Step 2: Calculate how many extra balls are delivered

Step 3: Calculate the amount of tennis balls altogether.

In a tennis club there are **217 boxes of tennis balls.**

There are **6 balls in every box.**

Another **12 boxes are delivered.**

How many **tennis balls** are there **altogether?**

The final calculation we need to do is: **$1302 + 72$.**

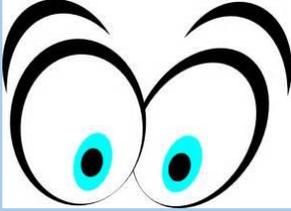
We could use a formal written method to solve this or use our mental arithmetic

Written method

$$\begin{array}{r} 1302 \\ + \quad 72 \\ \hline 1374 \end{array}$$

Why is this our final calculation?

Final check



In a tennis club there are **217 boxes of tennis balls.**

There are **6 balls in every box.**

Another **12 boxes are delivered .**

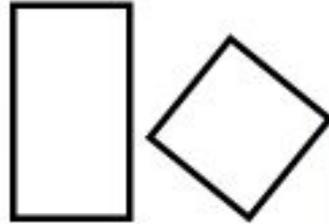
How many **tennis balls** are there **altogether?**

Now go back and read the question again. Is our answer **reasonable** and **have we answered the question?**

Answer: There are 1,374 tennis balls altogether.

Focus on 2D Shapes

- 1) Here are two quadrilaterals.
a) Write one feature that is the same for both shapes.

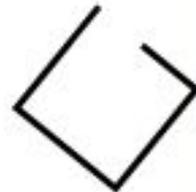


White
Rose
Maths

- b) Write one feature which is different between the shapes.

- 2) How many equal sides does a rhombus have?

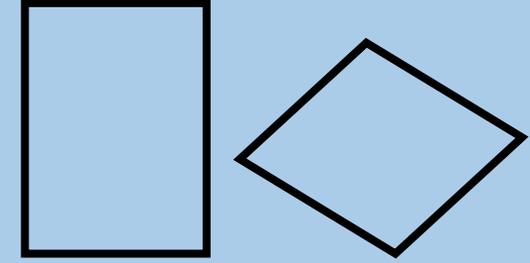
- 3) Explain why this shape is not a square.



3:00

- 1) Here are two quadrilaterals.
 - a) Write one feature that is the same for both shapes.

Both have four sides, both have straight sides, all internal angles are 90 degrees.



- b) Write one feature which is different between the shapes.

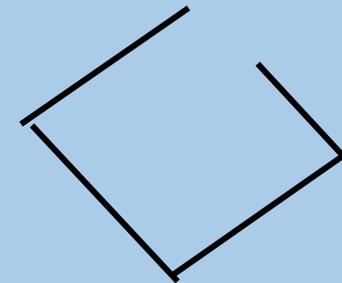
One has four equal sides, the other has two pairs of equal sides.

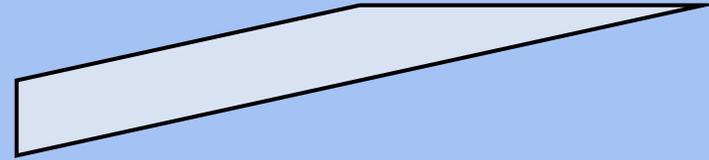
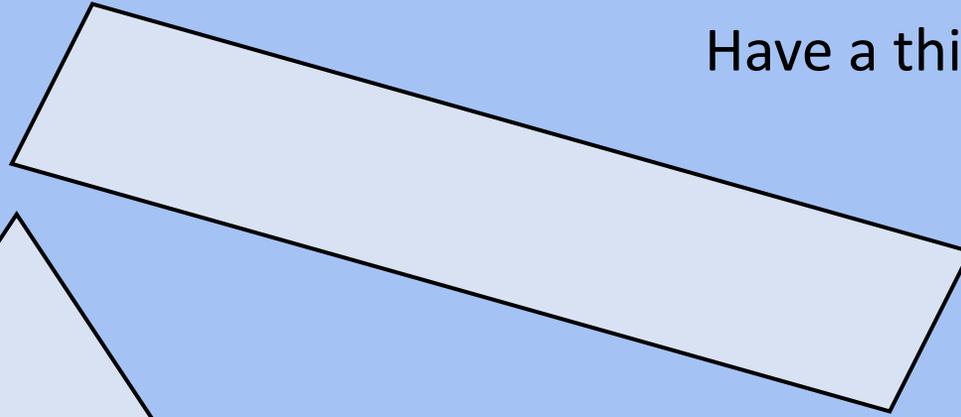
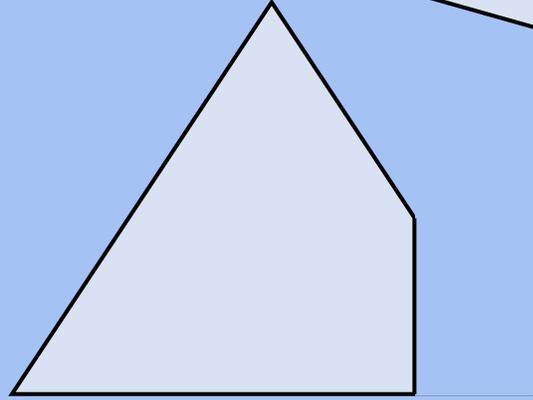
- 2) How many equal sides does a rhombus have?

4

- 3) Explain why this shape is not a square.

It is not a closed shape.





Have a think



What's the same about these shapes?

2-D

4 straight sides

Closed

Quadrilaterals

Have a think



I have 4 right angles.
You can calculate my perimeter
if I tell you the length of one
side.

I have 4 straight sides.

All my sides are equal.
I have no right angles.

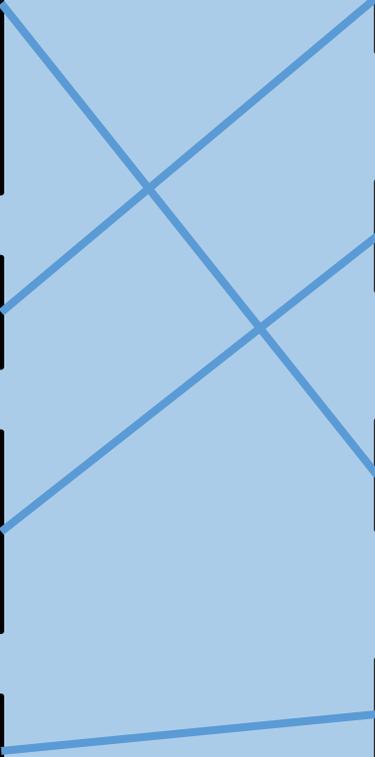
I have one pair of parallel sides.

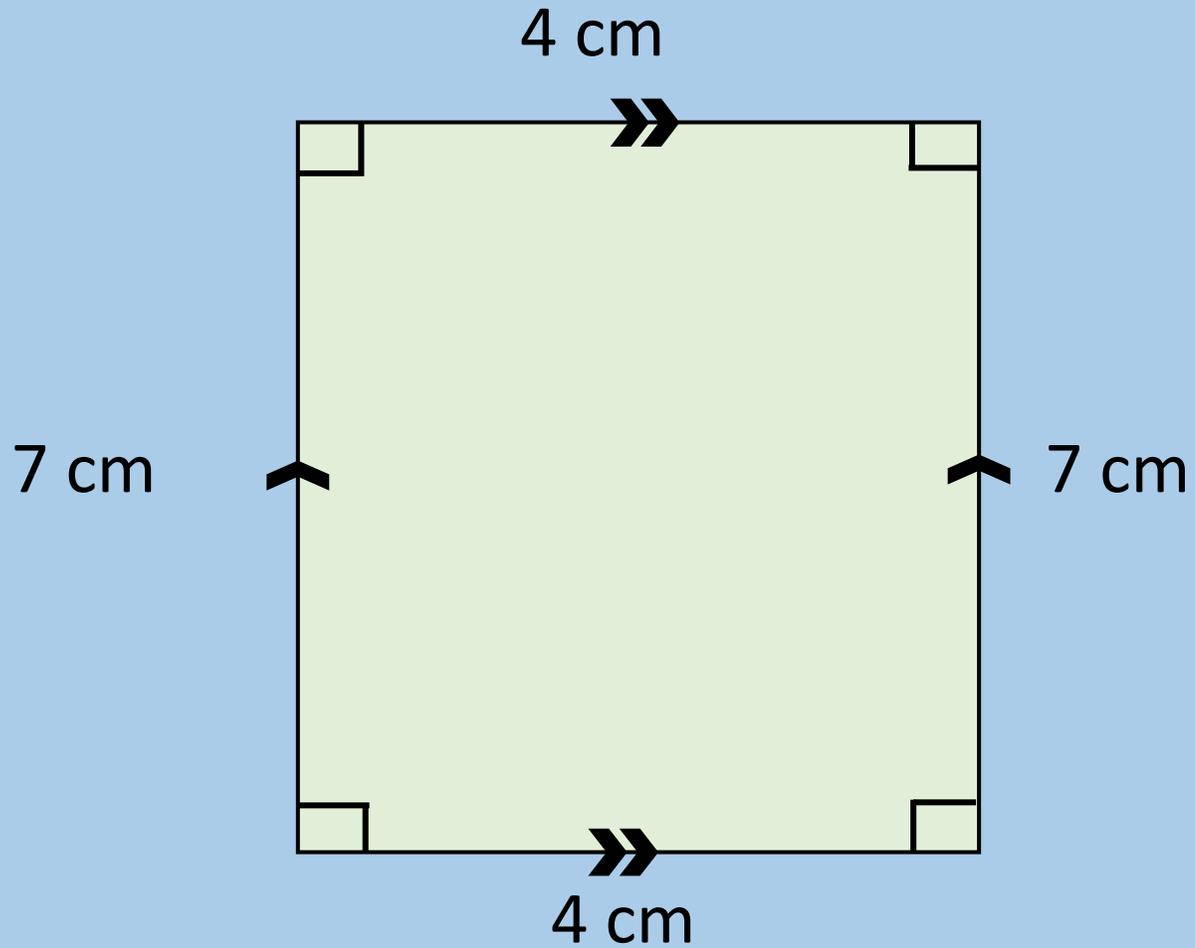
Quadrilateral

Rhombus

Square

Trapezium





Rectangle

2 pairs of parallel sides

2 pairs of equal sides

All angles equal (all right angles)

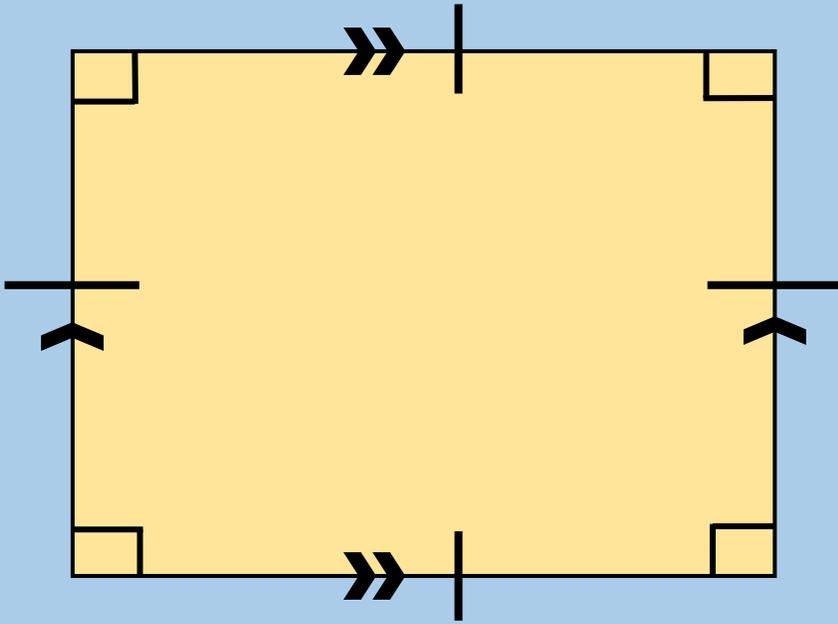
Rectangle

2 pairs of parallel sides

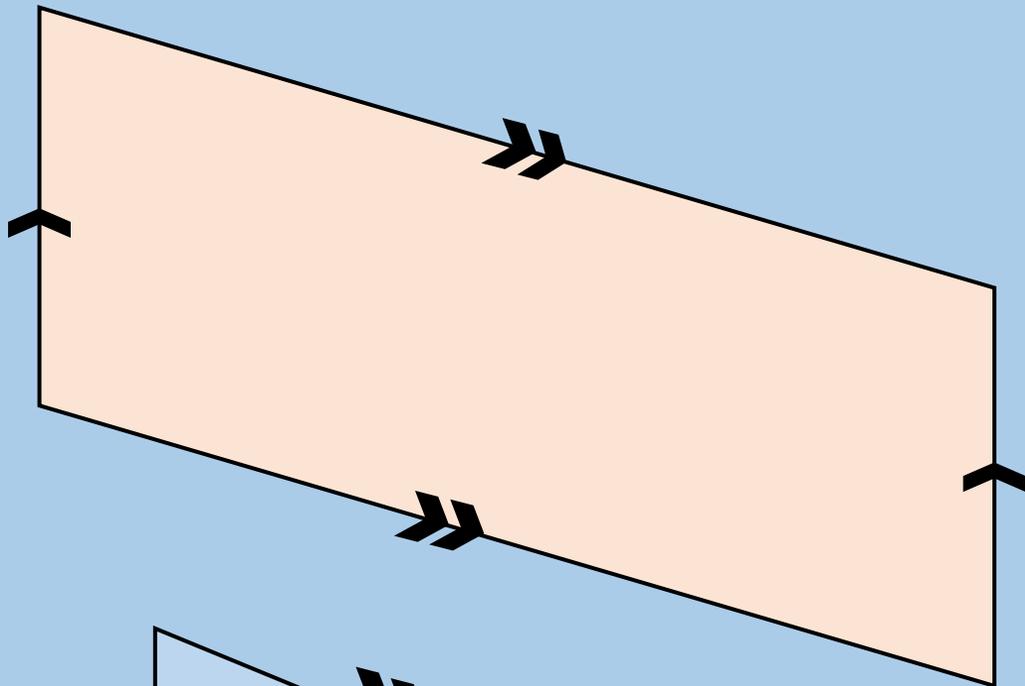
2 pairs of equal sides

All angles equal (all right angles)

All sides are equal

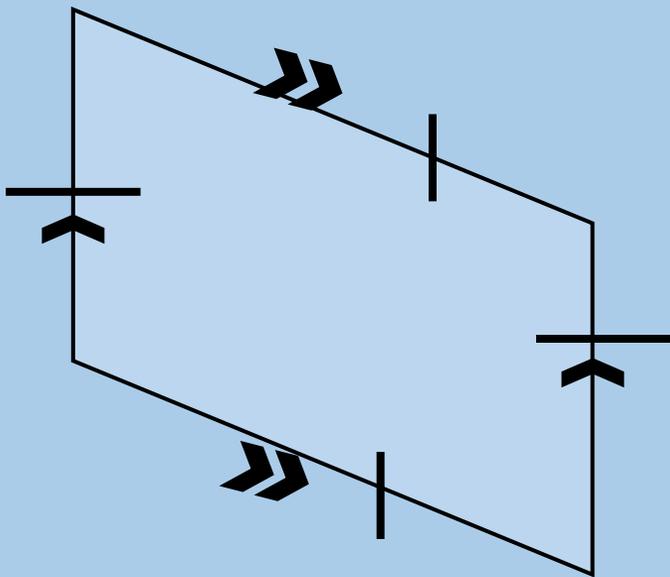


All squares are rectangles.



Parallelogram

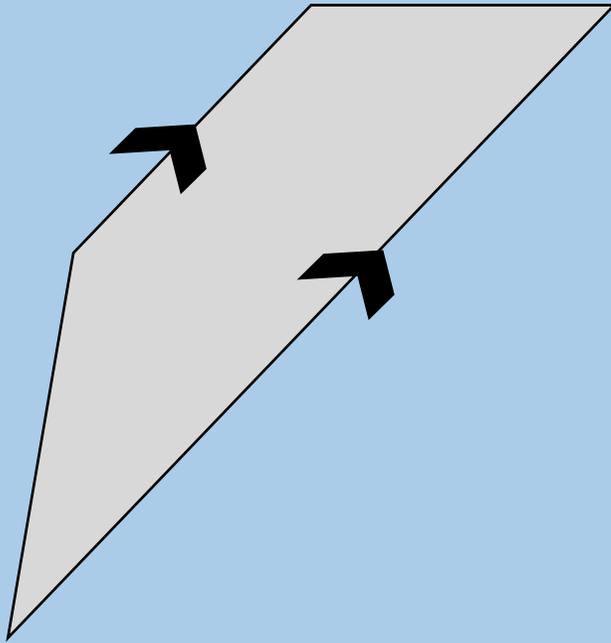
2 pairs of parallel sides



Rhombus

2 pairs of parallel sides

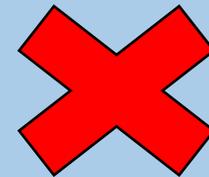
All sides are equal



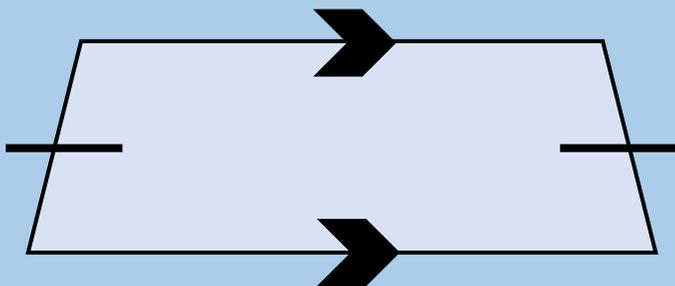
Trapezium

1 pair of parallel sides

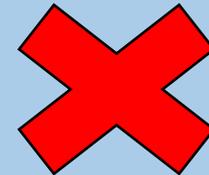
2 pairs of parallel sides



All sides equal



All angles equal



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number Place value			Number Addition and subtraction		Number Multiplication and division A			Number Fractions A			
Spring	Number Multiplication and division B			Number Fractions B		Number Decimals and percentages			Measurement Perimeter and area		Statistics	
Summer	Geometry Shape			Geometry Position and direction		Number Decimals			Number Negative numbers	Measurement Converting units		Measurement Volume

HOW YOU CAN HELP AT HOME

Discussing maths in real life contexts



	London	Bristol Parkway - Cardiff - Swansea	Cheltenham - Bath - Bristol							
Sundays from 26 July										
London Paddington	d	1903	1915	1930	2000	2030	2100	2130	2200	2215
Reading	d	1935	1945	2003	2030	2100	2130	2200	2230	2245
Didcot Parkway	d	1949	-	2017	2044	2114	2144	2214	2244	2259
Swindon	d	2009	2015	2036	2103	2133	2203	2233	2303	2319
Kemble	a	2022	-	-	-	-	-	2250	-	-
Stroud	a	2037	-	-	-	-	-	2305	-	-
Stonehouse	a	2042	-	-	-	-	-	2310	-	-
Gloucester	a	2053	-	-	-	-	-	2323	-	-
Cheltenham Spa	a	2108	-	-	-	-	-	2335	-	-
Chippenham	d	-	-	2049	-	2145	-	2245	-	2332
Bath Spa	a	-	2035	2105	-	2157	-	2257	-	2343
Bristol Parkway	d	-	-	-	2129	-	2229	-	2329	-
Bristol Temple Meads	a	-	2051	2117	-	2211	-	2311	-	2357
Weston-super-Mare	a	-	2110	-	-	-	-	-	-	0018
Newport	a	-	-	-	2149	-	2249	-	2353	-
Hereford	a	-	-	-	-	-	-	-	-	-
Cardiff Central	a	-	-	-	2205	-	2305	-	0014	-
Bridgend	a	-	-	-	2225	-	2325	-	0034	-
Port Talbot Parkway	a	-	-	-	2237	-	2337	-	0046	-
Neath	a	-	-	-	2244	-	2344	-	0053	-
	a	-	-	-	2257	-	2357	-	0106	-

a: arrives d: departs



Questions



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