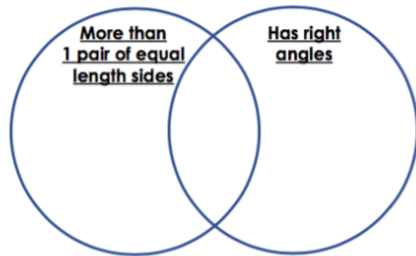# Green
Properties of quadrilaterals

For each of these quadrilaterals, write the name, number of equal sides, right angles and pairs of parallel sides.

a)   b)   c)

Sort the quadrilaterals into the Venn diagram below using the name of the shape.

More than 1 pair of equal length sides   Has right angles

rectangle
square
parallelogram

Halima thinks that the shape matches her statement. Is she correct? Explain your answer.

This quadrilateral has 2 right angles.

True or false?

This quadrilateral has 2 pairs of sides that are equal in length and 2 right angles.

Yao thinks that the shape matches his statement. Is he correct? Explain your answer.

This quadrilateral has all equal length sides and 4 right angles.

Look at the quadrilaterals below. Which is the odd one out? Explain your answer.

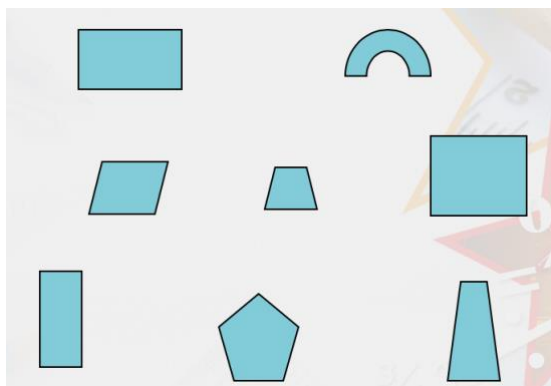rectangle   parallelogram   square

---

Terry is thinking of a shape. It has:

- 4 sides

- 2 pairs of parallel sides

- No right angles

What shape could Terry be thinking of? Give all possible answers.

Yellow
Properties of quadrilaterals

Which shapes are the quadrilaterals?

Copy and complete the description of this shape.

This shape has ___ sides. It has ___ right angles. It has ___ sets of parallel sides.

Copy and complete the description of this shape.

This shape has ___ sides. It has ___ right angles. It has ___ sets of parallel sides.

True or false?

This quadrilateral has two pairs of parallel sides and two right angles.

Jenny thinks that the shape matches her statement.

This quadrilateral has 1 pair of parallel lines and 0 right angles.

Is she correct? Explain your answer.

Which statements are true?

It is a parallelogram

It has parallel lines

It has right angles

It has 4 sides

It is a rectangle

Which statements are true?

It has no parallel sides

It has 4 right angles

It has equal sides

It has 4 sides

It is a square

How many quadrilaterals can you draw that have:

a) only one set of parallel lines;

b) no right angles;

c) all sides of equal length.

Red
Properties of quadrilaterals

True or false?

This quadrilateral is a square as all sides are of equal length.

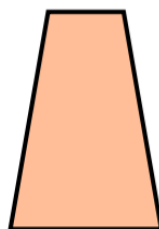Robert thinks that the shape matches his statement. Is he correct? Explain your answer.

This shape has 2 pairs of parallel sides.

Look at the quadrilaterals below. Which is the odd one out? Explain your answer.

What is the same about these two shapes? What is different?

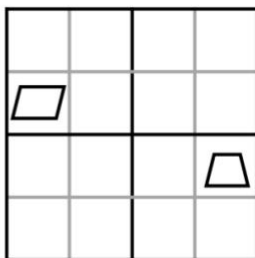Sian is trying to solve a puzzle using her knowledge of quadrilaterals.

She says,

Each row, column and quarter must not use the same shape more than once.

The only four shapes that I can use are squares, rectangles, parallelograms and trapeziums.

Investigate the possible solutions to the puzzle.

Is there more than one possible solution?

Which statements are true?

It has no right angles

It has no parallel sides

It is a square

It has 5 sides

It is a rhombus

Robert is trying to design a robot using quadrilaterals. This is the criteria for his design.

The robot must include at least 5 different types of quadrilaterals.

The arms of the robot must have 2 sets of parallel lines.

The total design must not use more than 20 different quadrilaterals.

Investigate which designs would work?
How many different designs can you create?

Which statements are true?

It has 1 pair of equal sides

It has no right angles

It has no parallel sides

It is a trapezium

Green Answers
Properties of quadrilaterals

F
t
a

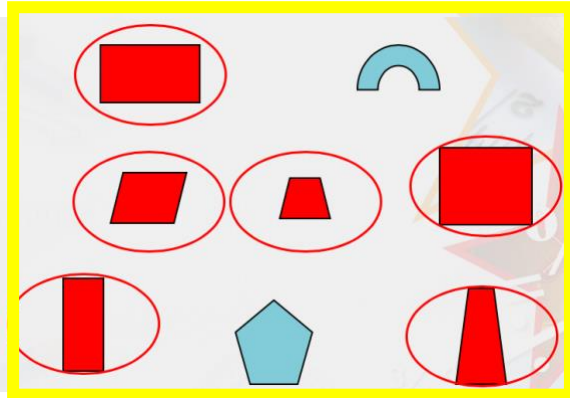Name: *parallelogram*

Pairs of equal length sides: *2*

Pairs of parallel sides: *2*

Number of right angles: *0*

Name: *rectangle*

Pairs of equal length sides: *2*

Pairs of parallel sides: *2*

Number of right angles: *4*

Name: *trapezium*

Pairs of equal length sides: *1*

Pairs of parallel sides: *1*

Number of right angles: *0*

a)

Sort the quadrilaterals into the Venn diagram below using the name of the shape.

Has more than 1 pair of equal length sides: parallelogram
Middle section: square, rectangle

square
parallelogram

Halima thinks that the shape matches her statement. Is she correct? Explain your answer.

This quadrilateral has 2 right angles.

Halima is incorrect. A parallelogram does not have any right angles.

True or false?

This quadrilateral has 2 pairs of sides that are equal in length and 2 right angles.

False because it is a rectangle. Rectangles do have 2 pairs of sides equal in length but they have 4 right angles, not 2.

Yao thinks that the shape matches his statement. Is he correct? Explain your answer.

Yao is correct as a square has all equal length sides and 4 right angles.

Look at the quadrilaterals below. Which is the odd one out? Explain your answer.

Various possible answers, for example: the parallelogram is the odd one out as it is the only shape that does not have any right angles.

rectangle

parallelogram

square

Terry is thinking of a shape. It has:

- 4 sides

- 2 pairs of parallel sides

Terry could be thinking of a parallelogram or a rhombus.

What shape could Terry be thinking of? Give all possible answers.

Yellow Answers
Properties of quadrilaterals

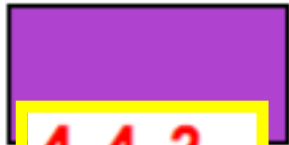|	
Which shapes are the quadrilaterals? 	**Copy and complete the description of this shape.** This shape has ___ sides. It has ___ right angles. It has ___ sets of parallel sides. **4, 0, 2**

Copy and complete the description of this shape.

This shape has ___ sides ... angles. It has ___ sets of parallel sides.

False because it is a trapezium. Trapeziums only have one pair of parallel sides and no right angles.

This quadrilateral has two pairs of parallel sides and two right angles.

4, 4, 2

Jenny thinks that the shape matches her statement.

This quadrilateral has 1 pair of parallel lines and 0 right angles.

Is she correct? Explain your answer.
Jenny is incorrect because this quadrilateral is a parallelogram so it has 2 pairs of parallel lines and no right angles.

Which statements are true?

It is a parallelogram

It is a parallelogram; it has parallel lines; it has 4 sides

It has 4 sides

It is a rectangle

Which statements are true?

It has no parallel sides

It has 4 sides; it has 4 right angles; it is a square; it has equal sides

It has 4 sides

It is a square

How many quadrilaterals can you draw that have:

a) only one set of parallel lines;
Children may draw trapeziums.

b) no right angles;
Children may draw parallelograms, trapeziums, kites or any irregular quadrilateral fitting the description.

c) all sides of equal length.
Children may draw a square or a rhombus.

c) all sides of equal length.

True or false?

False, it is a rhombus. Although all sides are of equal length, this shape has no right angles whereas a square has 4 right angles.

This quadrilateral is a square as all sides are of equal length.

Robert thinks that the shape matches his statement. Is he correct? Explain your answer.
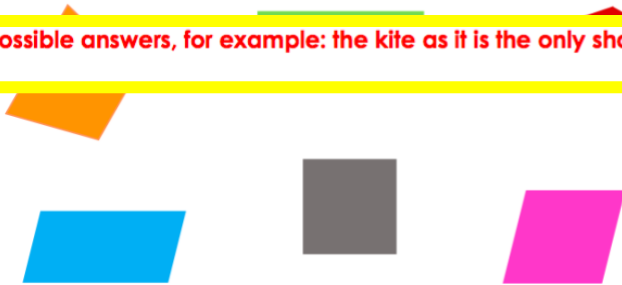
This shape has 2 pairs of parallel sides.

Robert is incorrect as a trapezium only has 1 pair of parallel sides.

Look at the quadrilaterals below. Which is the odd one out? Explain your answer.

Various possible answers, for example: the kite as it is the only shape with no parallel lines.

What is the same about these two shapes? What is different?

Various answers, for example:
Same: 4 sides; no right angles.
Different: amount of pairs of parallel sides; length of sides.

Sian is trying to solve a puzzle using her knowledge of quadrilaterals.
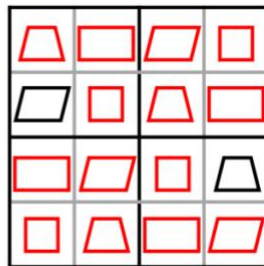
She says,

Each row, column and quarter must not use the same shape more than once.

The only four shapes that I can use are squares, rectangles, parallelograms and trapeziums.

Investigate the possible solutions to the puzzle.

Is there more than one possible solution?

Various possible answers, for example:

Which statements are true?

It has no right angles

It has no parallel sides

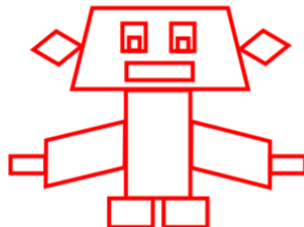It is a square

It has 5 sides

It is a rhombus

It has no right angles; it is a rhombus

Robert is trying to design a robot using quadrilaterals.
Th

Various possible answers, for example:

Investigate which designs would work?
How many different designs can you create?

Which statements are true?

It has 1 pair of equal

It is a trapezium; it has no right angles; it has 1 pair of equal sides

It is a trapezium