Global Teacher Empowerment Network GTEN

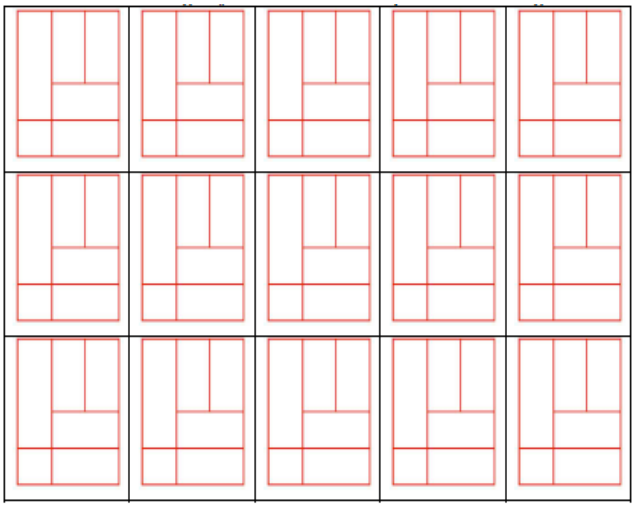
PROPERTIES OF QUADRILATERALS

Saturday 25 March 2023 17:00 in South Africa, 15:00 in UK
Join Zoom Meeting https://zoom.us/j/96000484207

RESOURCES REQUIRED: ***This Worksheet to fill in during the workshop***, Scrap paper, Pencil and eraser, 2 rulers of different widths, tracing paper or waxed baking paper, scissors.

1. Cut out some identical (congruent) quadrilaterals by cutting through several layers of scrap paper at the same time.
   Try to make a tessellation pattern using your quadrilaterals.
   Is it possible? Explain your answer!

2. **List the properties of a rectangle.**



Does a square have all those properties?

The frame is a 4 by 3 grid made up of squares.

3. **Using this template record all possible different rectangles in the frame.**

4. **Explain how you know that you have found all the rectangles?**

5. **Number the boxes 1 to 15. Sort the rectangles into sets that contain copies of the *same* rectangle.**
   Use language like 1 by 3 rectangle.

6. **What do we call 'the same' in mathematics?**

7. **Sort the rectangles into sets that contain copies of *similar* rectangles.**

8. **What do we call '*similar*' in mathematics?**

9. **Sort the rectangles in boxes 1-14 into sets that contain copies of the *same* or *congruent* rectangles.**

10. **Sort the rectangles in boxes 1-14 into sets that contain copies of *similar* rectangles.**

11. **For pairs of similar rectangles, compare the lengths of the edges and decide on the scale factors of the enlargements.**

12. **Describe the transformations that move one congruent shape to another.**

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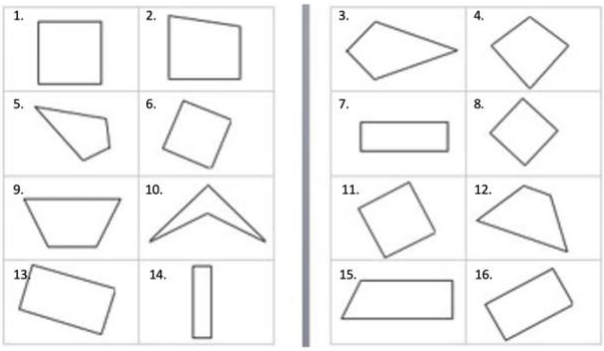

13. Sort the quadrilaterals into sets and name them

A1 The diagonals of the shape are equal	A2 The shape has at least one side that is 5cm long	A3 The diagonals of the shape bisect each other at right angles	A4 The shape has 4 equal angles	A5 The shape has two pairs of parallel sides
B1 The shape has at least one side that is 4cm long	B2 The diagonals of the shape bisect each other	B3 The shape has 4 equal angles	B4 Opposite sides of the shape are equal	B5 The shape has at least one side that is 6cm long
C1 The diagonals of the shape are not equal	C2 The shape has at least one side that is 12cm long	C3 The shape has at least one side that is 7cm long	C4 The shape contains at least one 55° angle	C5 Opposite sides of the shape are parallel
D1 The diagonals of the shape bisect each other at right angles	D2 All four sides are equal	D3 The shape contains at least one 70° angle	D4 Opposite sides of the shape are parallel	D5 The shape has at least one side that is 7cm long
E1 The shape has at least one side that is 5cm long	E2 One diagonal bisects the other diagonal into two 2cm segments	E3 The shape has two pairs of equal sides	E4 The diagonals of the shape intersect each other at right angles	E5 The shape has at least one side that is 4cm long
F1 The shape contains exactly one pair of parallel sides	F2 The shape has more than one side that is 10cm long	F3 The shape contains at least one 60° angle	F4 The shape has a side that is 6cm long	F5 The shape contains a pair of opposite sides that are equal

14. Name the quadrilaterals described by each set of properties.

Sketch the quadrilaterals.

Decide on the minimal number of properties required to define the quadrilateral.

If you have time work out the area of the quadrilateral.

https://aiminghigh.aimssec.ac.za/properties-of-quadrilaterals/