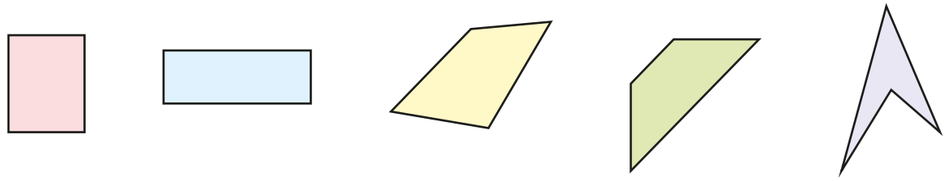
Know and apply the sum of angles in a quadrilateral

1 Here are some quadrilaterals.



a) For each quadrilateral, choose one vertex and join it to each other vertex in the shape using straight lines.

This will split each quadrilateral into triangles.

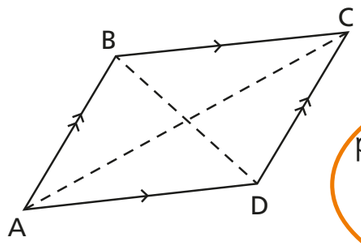
b) How many triangles has each quadrilateral been split into? ☐

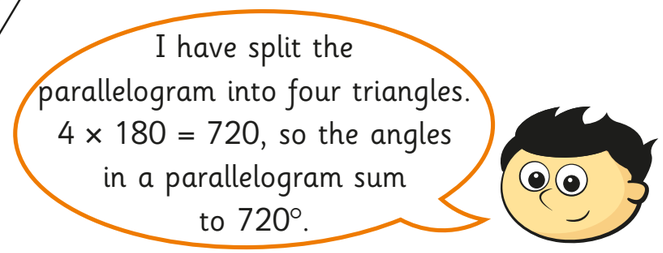
c) What is the sum of the angles in a triangle? ☐

d) Complete the sentence.

Angles in a quadrilateral sum to ☐

2 Jack is working out the sum of the interior angles of a parallelogram.





Do you agree with Jack? _____

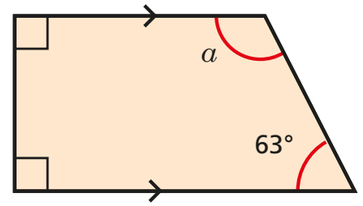
Explain your answer.

_____

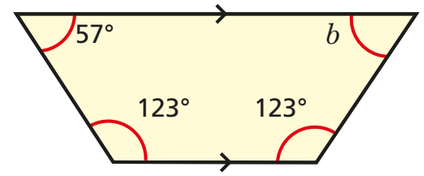
_____

3 Work out the size of the unknown angle in each trapezium.

a)



b)

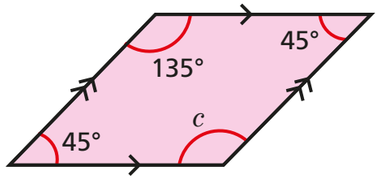


a = ☐ b = ☐

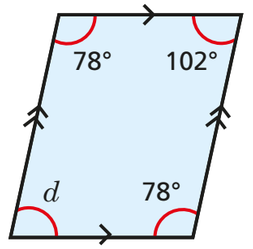
c) What is the same and what is different about the trapeziums?

4 Work out the sizes of the unknown angles in the parallelograms.

a)



b)



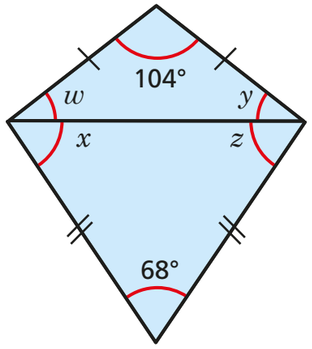
c = ☐ d = ☐

c) What do you notice about opposite angles in a parallelogram?

_____

5 Two isosceles triangles are joined to form a kite.

a) Work out the sizes of the unknown angles.



w = ☐ y = ☐ x = ☐ z = ☐

b) Work out $w + x$.

☐

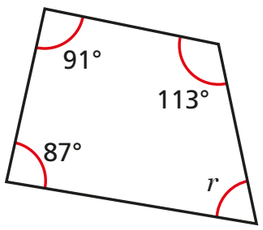
c) Work out $y + z$.

☐

What do you notice? Talk about it with a partner.

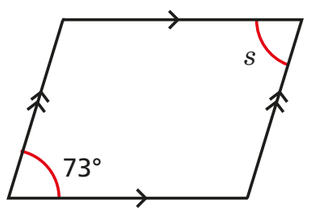
6 Work out the sizes of the unknown angles.

a)



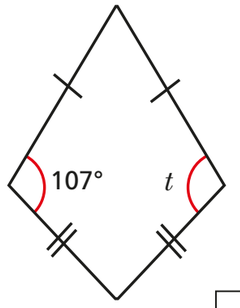
r = ☐

b)



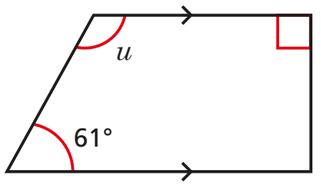
s = ☐

c)



t = ☐

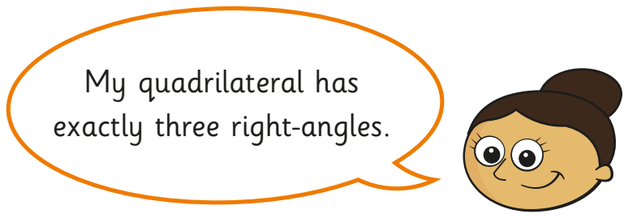
d)



u = ☐

Compare your reasoning with a partner.

7 Dora is drawing a quadrilateral.



Is Dora's quadrilateral possible? _____

Explain your answer.