



Thursday 16<sup>th</sup> July

LO: to calculate angles in regular polygons.

Something we learnt previously:

Complete the missing numbers.

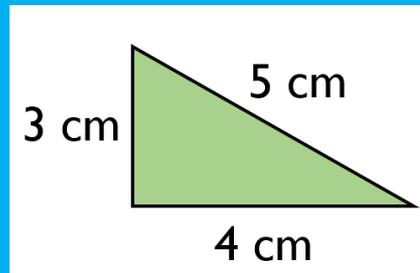
50% of 40 = \_\_\_\_% of 80

\_\_\_% of 40 = 1% of 400

10% of 500 = \_\_\_\_% of 100

Something we learnt last unit:

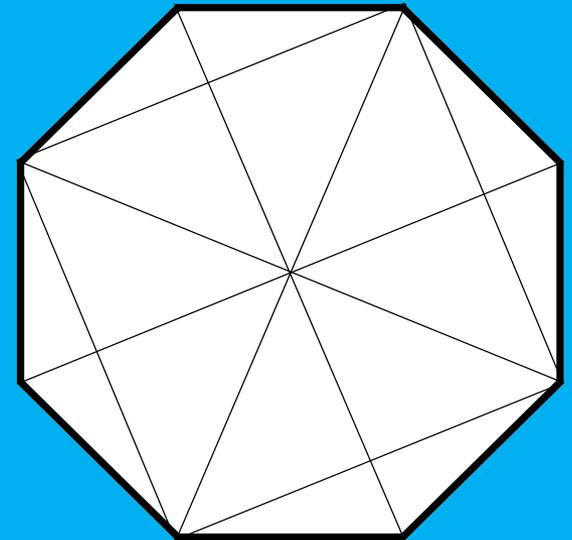
Enlarge this shape by a scale factor of 3:



Draw your new shape and label the measurements.

Something we are learning now:

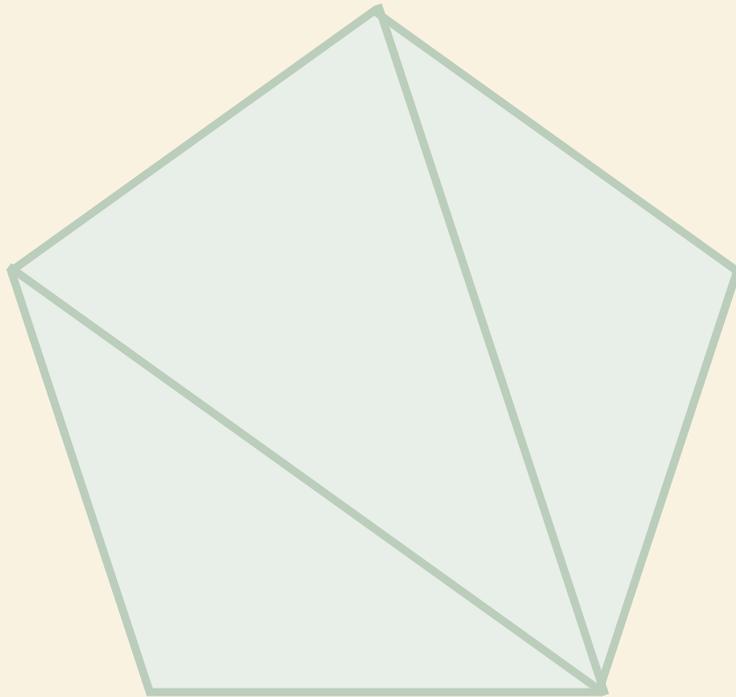
How many different polygons can you find in this pattern?





# I do:

**This pentagon is split into 3 triangles. Think about the sum of the angles in each triangle. Use this to help you work out the sum of the interior angles in the pentagon.**



**Each triangle has a sum of  $180^\circ$ .**

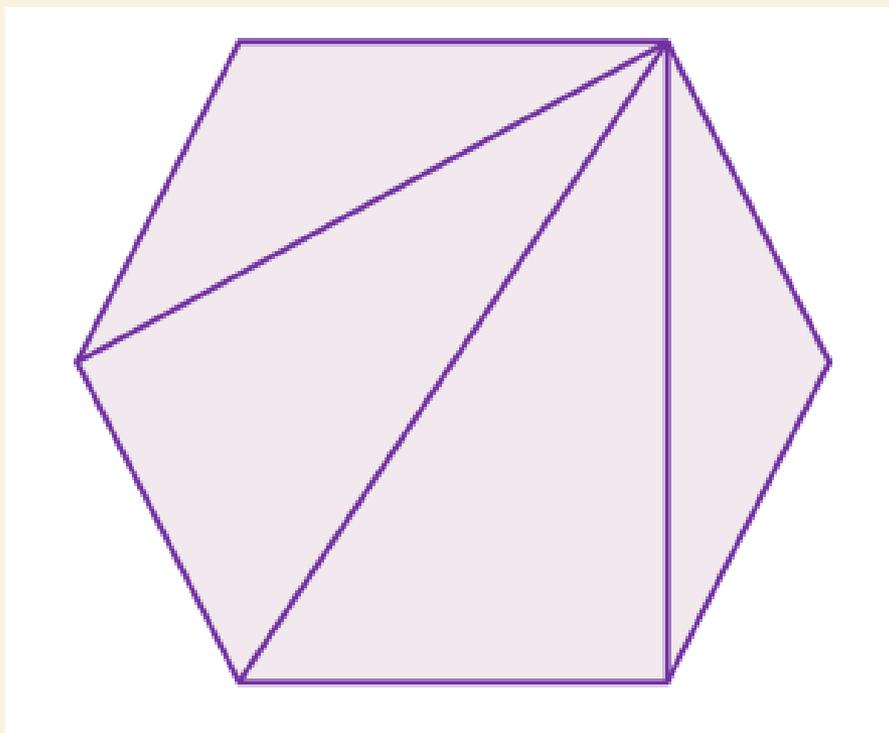
$$180^\circ \times 3 = 540^\circ$$

**The sum of the interior angles in a pentagon is  $540^\circ$ .**



# You do:

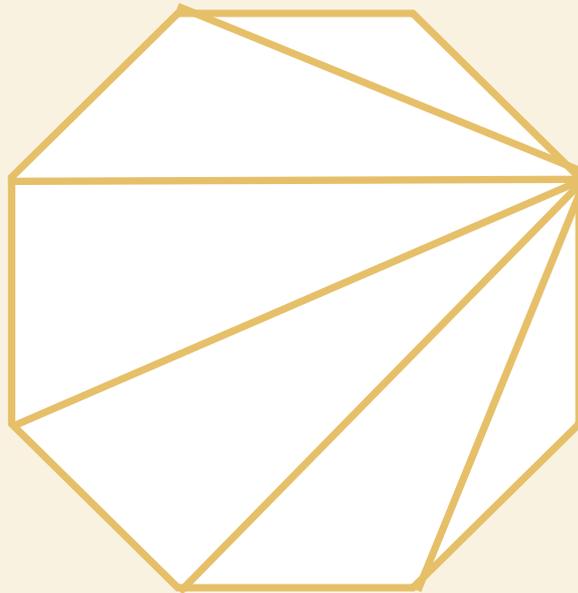
**This hexagon is split into 4 triangles. Think about the sum of the angles in each triangle. Use this to help you work out the sum of the interior angles in the hexagon.**



# I do:



The sum of the angles in a regular polygon is  $1,080^\circ$ . What is the name of the polygon?



**An octagon**

$$1,080 \div 180 = 6$$

**The only shape that can be split into 6 triangles is an octagon.**

A quadrilateral – 2 triangles

A pentagon – 3 triangles

A hexagon – 4 triangles

A heptagon – 5 triangles

# You do:



**The sum of the angles in a regular polygon is  $540^\circ$ . What is the name of the polygon?**

$$540^\circ \div 180 = \text{-----} \text{ (number of triangles)}$$

**A quadrilateral – 2 triangles**

**A pentagon – 3 triangles**

**A hexagon – 4 triangles**

**A heptagon – 5 triangles**

**An octagon – 6 triangles**

# Independent task:

Use what you have learned to answer the questions on your worksheet.

Where it asks you to compare with a partner, you don't need to do that (however you could discuss with an adult).

If you get stuck, go back and look at the examples from the I do, you do section again to help you.



**Angles in regular polygons**

1 The sum of the interior angles of a triangle is  $180^\circ$ .  
Split the polygons into triangles to work out the sum of their interior angles. Your lines should not overlap.  
The first one has been done for you.

a)  number of sides = 5  
number of triangles = 3  
 $3 \times 180 = 540$   
The sum of the interior angles of a pentagon is  $540^\circ$

b)  number of sides =   
number of triangles =   
  $\times 180 =$    
The sum of the interior angles of a hexagon is

c)  number of sides =   
number of triangles =   
  $\times 180 =$    
The sum of the interior angles of a heptagon is

What do you notice about the number of sides compared to the number of triangles?

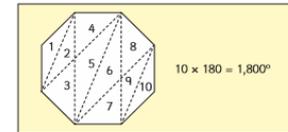
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2 Complete the table.

Shape	Number of sides	Number of triangles	Sum of interior angles
quadrilateral	4	2	$360^\circ$
pentagon			
nonagon			
decagon			
	6		
		6	
			$1,800^\circ$

Compare answers with a partner.

3 Dani is working out the sum of the interior angles of a polygon. Here are her workings.



Do you agree with Dani? \_\_\_\_\_  
Explain your answer.

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4 Rosie, Amir and Eva are drawing polygons.

a)  I have split my polygon into four triangles.  
Rosie  
What polygon has Rosie drawn? \_\_\_\_\_

b)  The sum of the interior angles of my polygon is  $1,080^\circ$ .  
Amir  
What polygon has Amir drawn? \_\_\_\_\_

c)  My polygon has more sides than Rosie's but fewer than Amir's.  
Eva  
What is the sum of the interior angles of Eva's polygon?

5 Each compound shape is made up of regular polygons. Work out angle  $y$  in each case.

a)   $y =$

b)   $y =$

c)   $y =$

d)   $y =$

6 The pentagons shown are regular. Work out the size of angle  $y$  in each case.

a)   $y =$

b)   $y =$

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# Plenary:

Use the clues to work out what shape each person has.

Dora



My polygon is made up of 5 triangles.

The sum of my angles is more than  $540^\circ$  but less than  $900^\circ$

Tommy



Alex



The sum of my angles is equivalent to the sum of angles in 3 triangles.

What is the sum of the interior angles of each shape?

# Maths meeting:

## YEAR 6

Week 6 - Thursday

### Rounding Whole Numbers

Give an example for each statement:

- e.g.  $\boxed{47}$  to the nearest 10 = **50**
- 1.)  $\boxed{\phantom{00}}$  to the nearest 10 = **110**
- 2.)  $\boxed{\phantom{000}}$  to the nearest 1,000 = **3,000**
- 3.)  $\boxed{\phantom{0000}}$  to the nearest 100 = **7,600**

### Back to Basics

4.) 
$$\frac{1365}{3} =$$

5.)  $1,776 \times 8 =$

6.)  $8,354 + 3,298 =$

7.)  $5,448 - 2,199 =$