

## Maths Week 3

Starters - try doing one every day:

These starters are objectives that you have learnt in Year 5.

- Revise times tables (there is a 2do set on Purple Mash)
- Write down the first 10 cube numbers.
- Convert the following times to a 24hour clock:  
6:20am, 11:48pm, 9:15am, 1:35pm
- Multiply 234 by 10, 100, 1000 and 10,000.
- Divide 52930 by 10, 100, 1000 and 10,000.

### Week 1 of 'Shape' (rectangles)

Task 1: L.O. To understand the properties of rectangles.



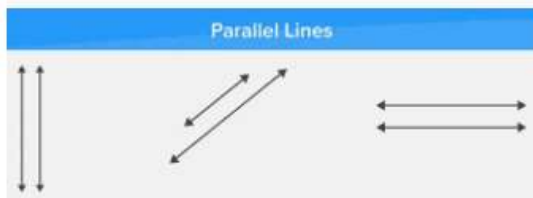
What can you tell me about this shape?

Use what you know to reason from known angles, such as 90 degrees in the corner of a rectangle.

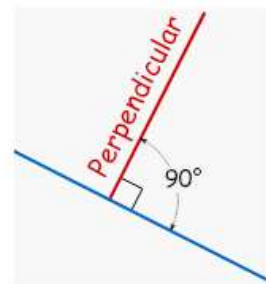
Knowledge:

A right angle is 90 degrees. Half a right angle is 45 degrees.

Where are the parallel lines?



Where are the perpendicular lines?



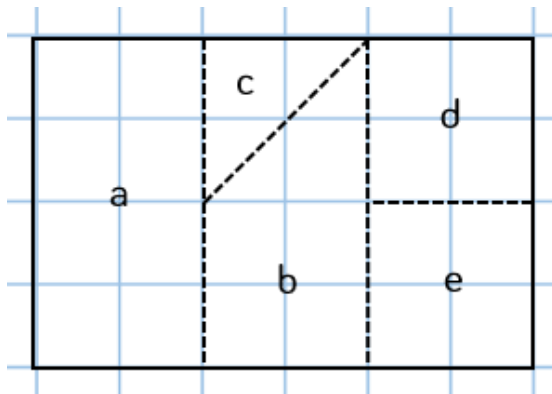
How is a square a special rectangle?



What is the same?  
What is different?

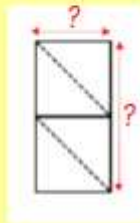
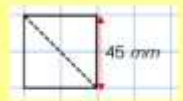
## Task 1

Using what we know we need to work out the angles. Calculate the size of the angles in each shape (protractor not needed)



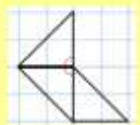
Mastery:

Here's a square



Use the square to work out the missing lengths.

Use the square to calculate the missing lengths and angles.



Knowledge: What does bisect mean?

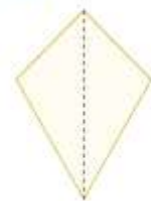
"Bisect" means to divide into two equal parts.

You can bisect lines, angles, and more.

The dividing line is called the "bisector"

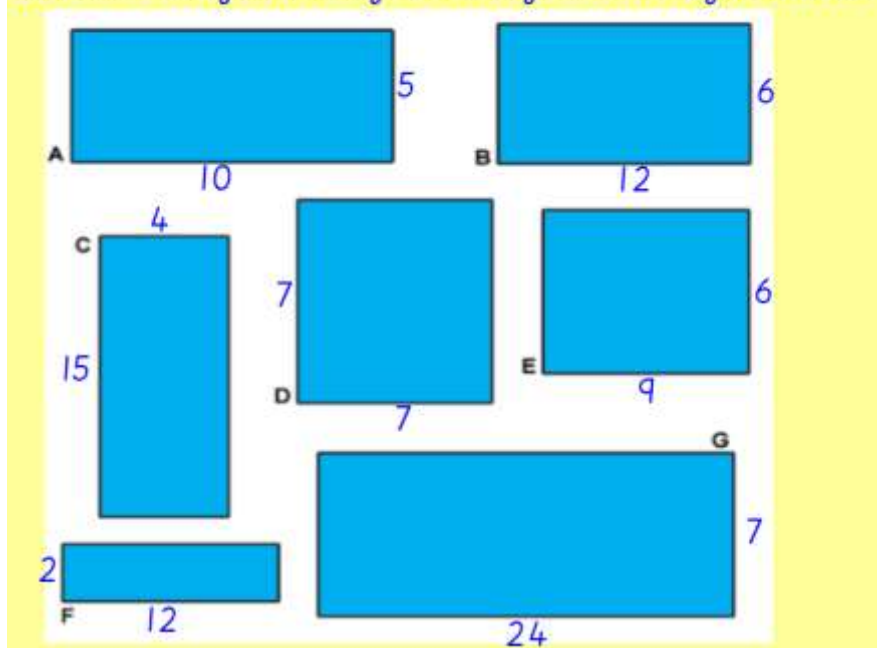
Bisect a Shape

We can also bisect some shapes. Here a kite is bisected by a dashed line:



## Task 2

Do the diagonals of rectangles always bisect?



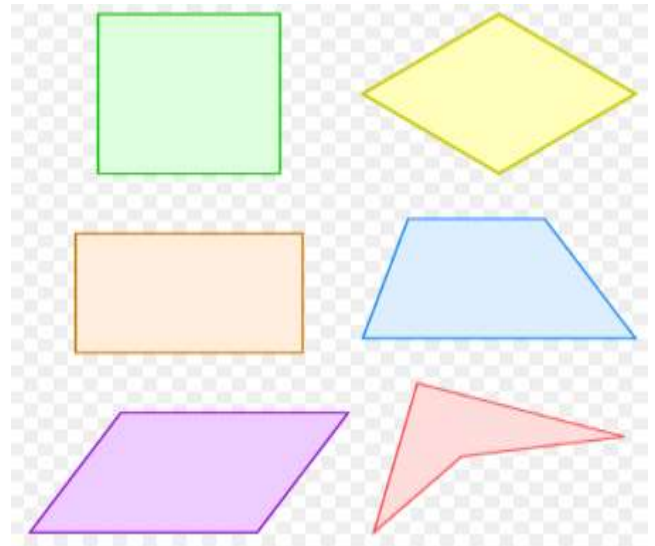
Draw the diagonals onto the rectangles. Is there more than 1 diagonal?

## Knowledge: What is a quadrilateral?

### Quadrilaterals

A shape with:

- four straight sides
  - four angles – equal to 360 degrees
  - four vertices (corners).
- 
- Quad means four.
  - Lateral means sides.



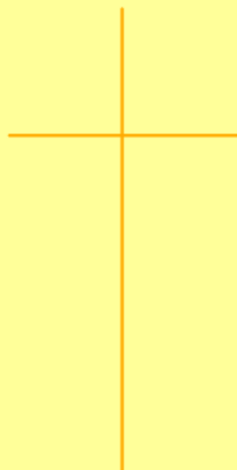
### Interior Angles

- ❑ **Interior angles:** An **interior angle** (or **internal angle**) is an angle formed by two sides of a simple polygon that share an endpoint
- ❑ Interior angles of a quadrilateral **always** equal 360 degrees

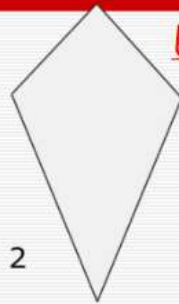
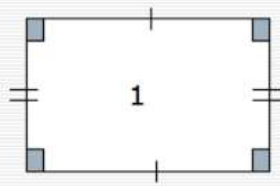
## Task 3 - What quadrilateral will I make?

*Talk task:*

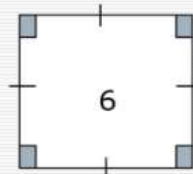
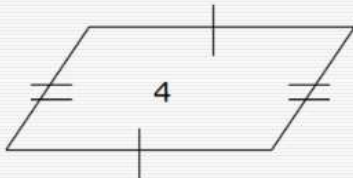
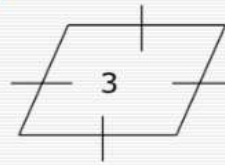
*Join the adjacent corners.  
What is my shape?  
List the properties.*



# Name the Quadrilaterals



*Use key vocabulary*



**Task 4 - L.O. To use the properties of rectangles to deduce facts.**

6cm



3cm

*What is the perimeter of this rectangle?  
How could you work it out?*

**Knowledge: The perimeter is the distance around the edge of a shape.**

8cm



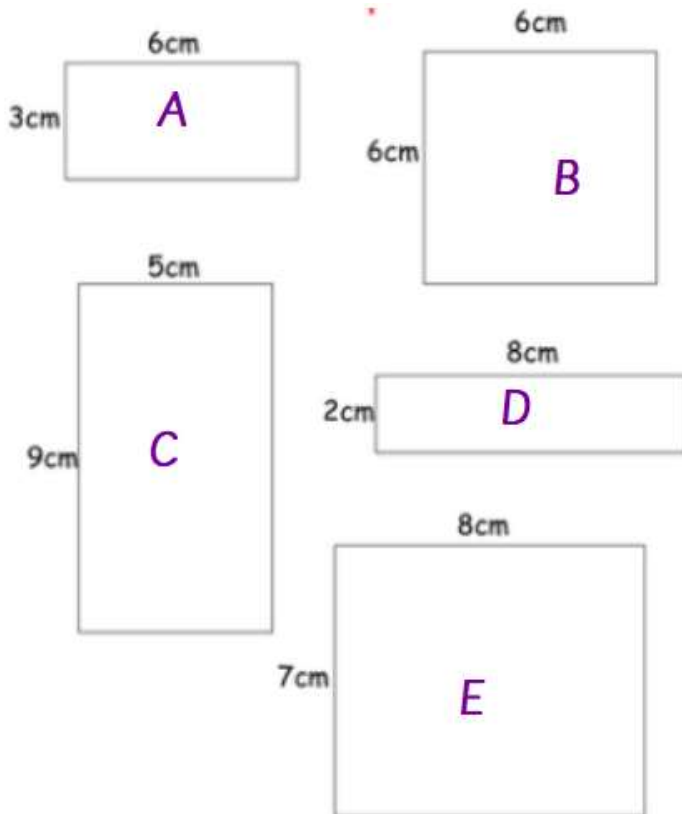
7cm

*How to use the formula:*

$$2l + 2b$$

$$8cm + 8cm + 7cm + 7cm = 30cm$$

## Find the perimeter



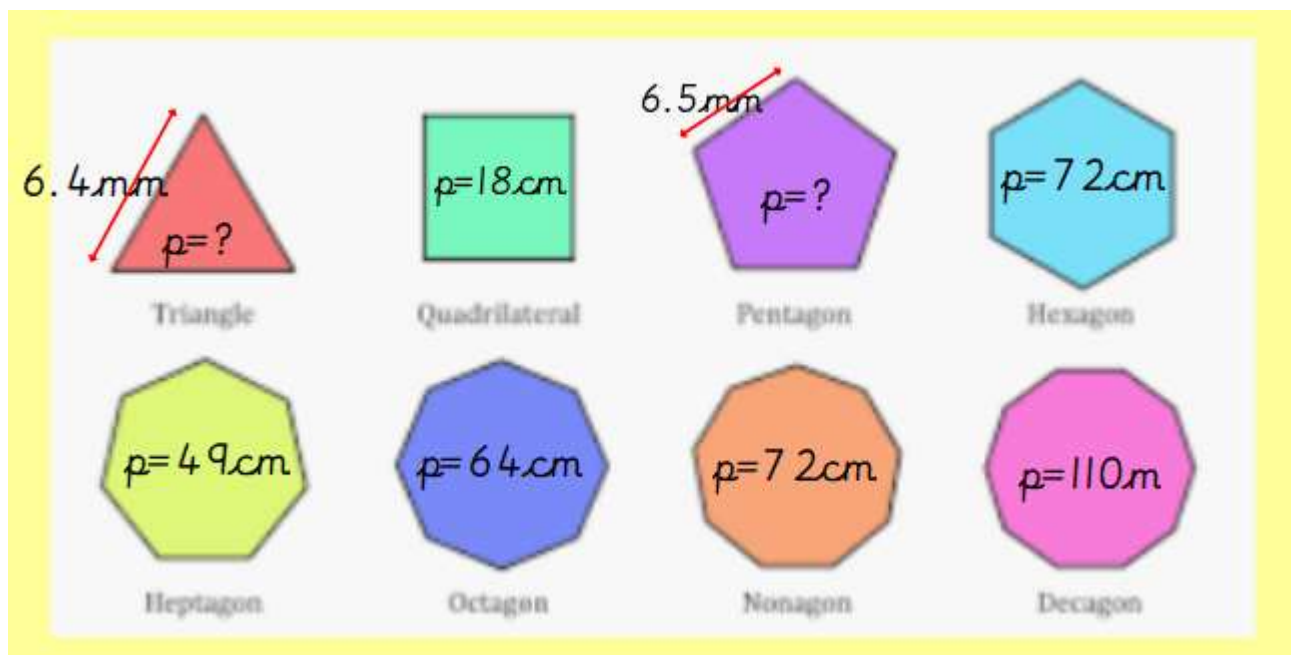
## Challenge

- The perimeter of the rectangle is 45cm.



Find the length of the rectangle.

**Task 5** - Use what you have just learnt to work out the lengths/perimeter of other polygons.



## Challenge

How could we work this out?  
Talk to your partner.



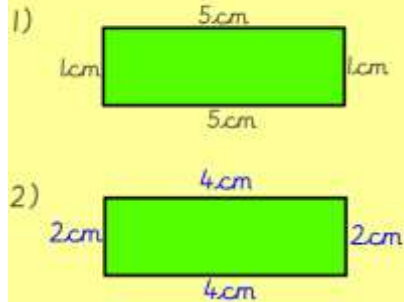
If the  $P = 12\text{cm}$ , what  
could the dimensions be?

How could we work this out?



If the  $P = 12\text{cm}$ , what  
could the dimensions be?

Let's work systematically.

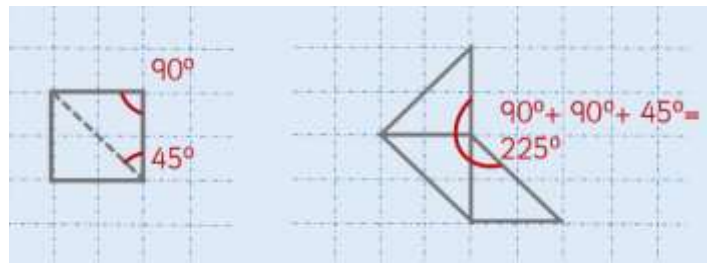
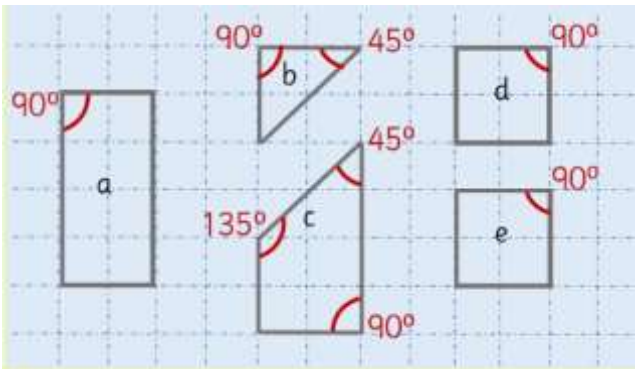


How many other options using whole numbers?

What if you worked to 1dp?

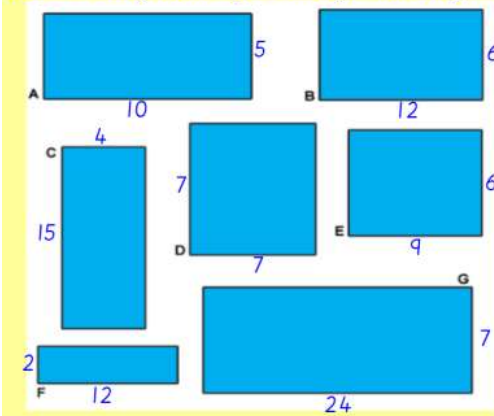
## Answers:

### Task 1

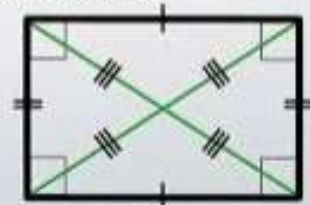


### Task 2

Do the diagonals of rectangles always bisect?



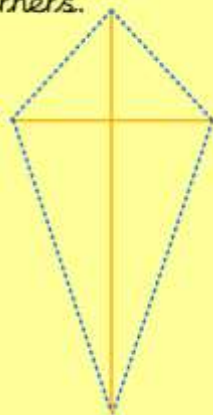
- the diagonals of a rectangle are equal in length to each other and they bisect each other at their point of intersection



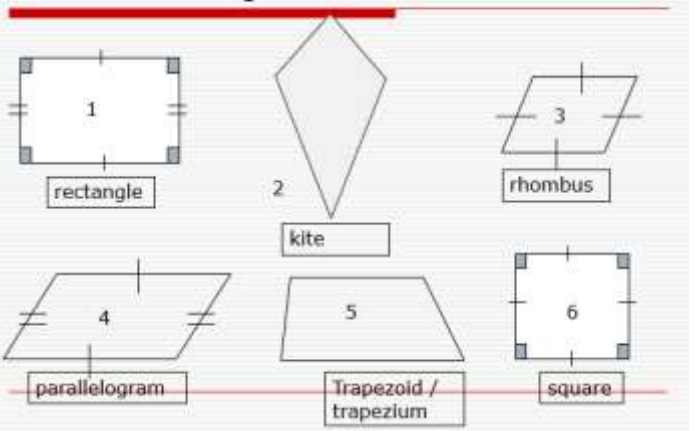
### Task 3

Join the adjacent corners.  
What is my shape?

Kite



### Name the Quadrilaterals





#### Task 4

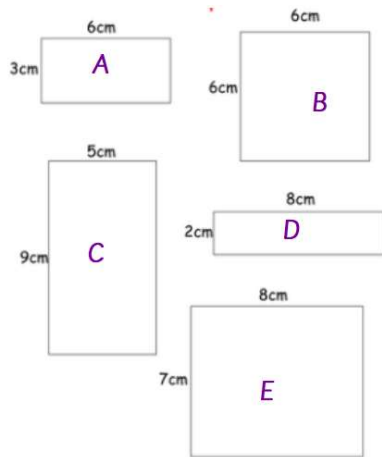
$$A = 18\text{cm}$$

$$B = 24\text{cm}$$

$$C = 28\text{cm}$$

$$D = 20\text{cm}$$

$$E = 30\text{cm}$$



#### Challenge

$$2 \times 4.9 = 9.8\text{cm}$$

$$45\text{cm} - 9.8\text{cm} = 35.2\text{cm}$$

$$35.2 / 2 = 17.6\text{cm}$$

$$\text{Length} = 17.6\text{cm}$$

- The perimeter of the rectangle is 45cm.



Find the length of the rectangle.

#### Task 5

$$\text{Triangle perimeter} = 19.2\text{mm}$$

$$\text{Quadrilateral length} = 4.5\text{cm}$$

$$\text{Pentagon perimeter} = 32.5\text{mm}$$

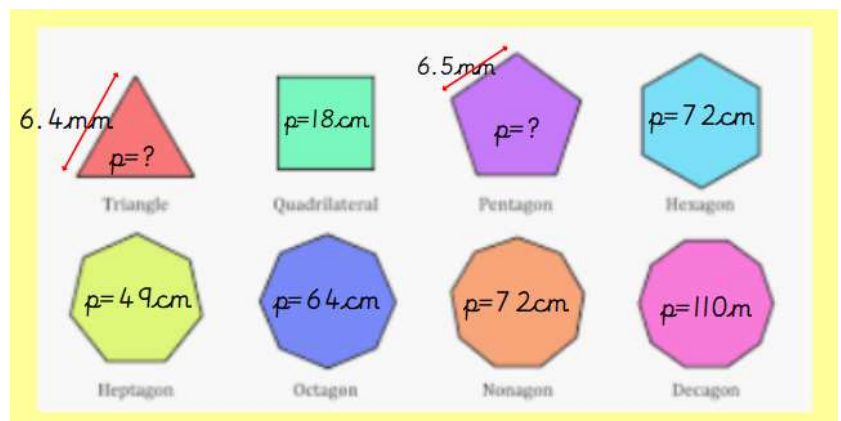
$$\text{Hexagon length} = 12\text{cm}$$

$$\text{Heptagon length} = 7\text{cm}$$

$$\text{Octagon length} = 8\text{cm}$$

$$\text{Nonagon length} = 8\text{cm}$$

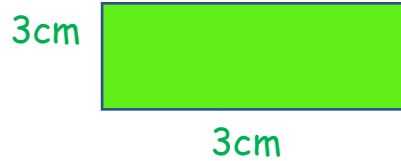
$$\text{Decagon length} = 11\text{m}$$





## Challenge

How many other options using whole numbers?



What if you worked to 1dp?

L=5.9 W=0.1

5.8 0.2

5.7 0.3

5.6 0.4

5.5 0.5

5.4 0.6

5.3 0.7

5.2 0.8

5.1 0.9

5.0 1.0

continue the pattern...

L=4.9 W=1.1

How could we work this out?



If the  $P = 12\text{cm}$ , what could the dimensions be?

Let's work systematically.

