WALT measure angles in shapes.

WILF:

- Use the properties of rectangles to find missing angles.

- Identify angles at a point and a whole turn.

- Use a protractor correctly to measure angles.

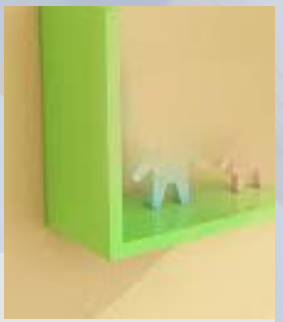
These slides have been edited.

Recap:

How many degrees are in:
A right angle?
A half turn?
A full turn?

What do the degrees add up to on a:
Circle?
Straight line?

Recap:



How many degrees are in:

A right angle? 90°

A half turn? 180°

A full turn? 360°

What do the degrees add up to on a:

Circle? 360°

Straight line? 180°

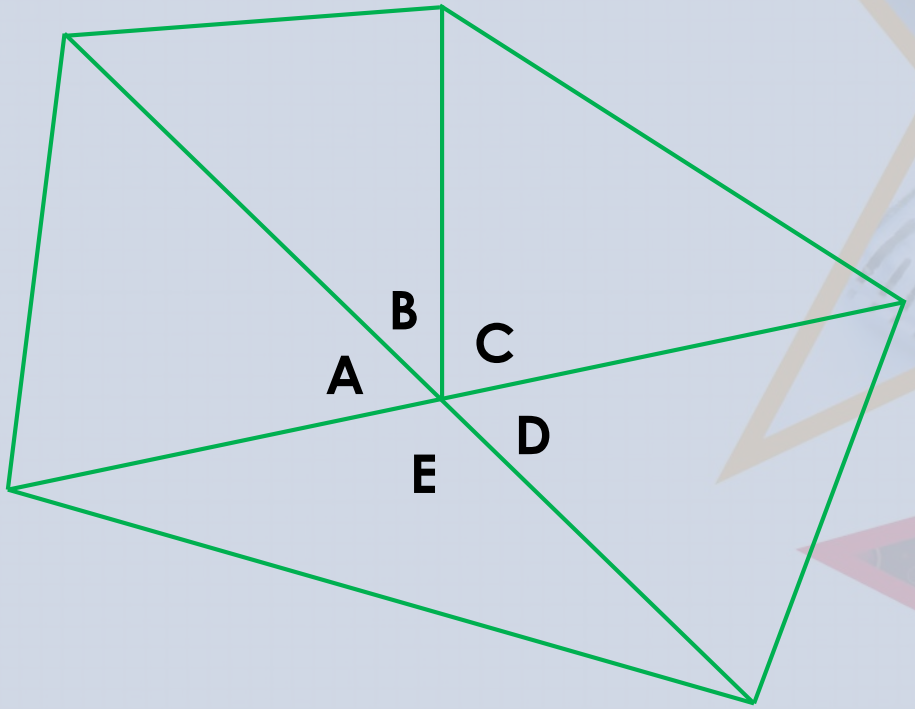
Recap

If you've been struggling to measure with a protractor, watch this video:
https://safeYouTube.net/w/gR6J

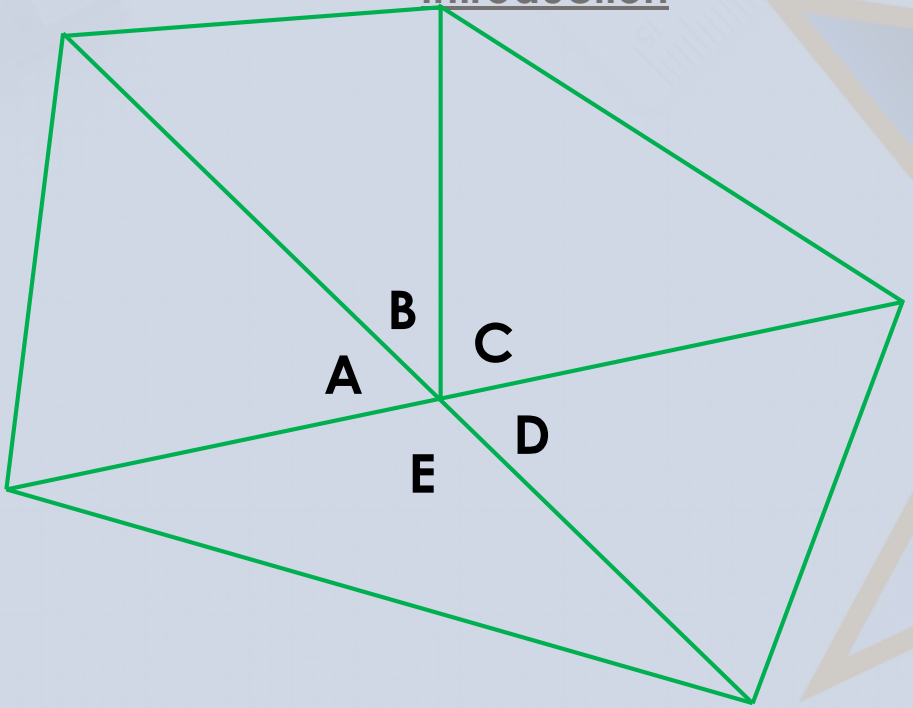
Note: with the last part, you can also rotate the protractor so that the vertex is still in the centre and one of the lines is at 0 to measure.

Introduction

What do you know about the angles in this shape?



Introduction



You can look at the different line crossings to find angles. For example, there is a straight line in the middle, but all letters together make a circle. Therefore, you can use your knowledge of the straight line being 180° and the circle being 360° to help you make comparisons and angle combinations.

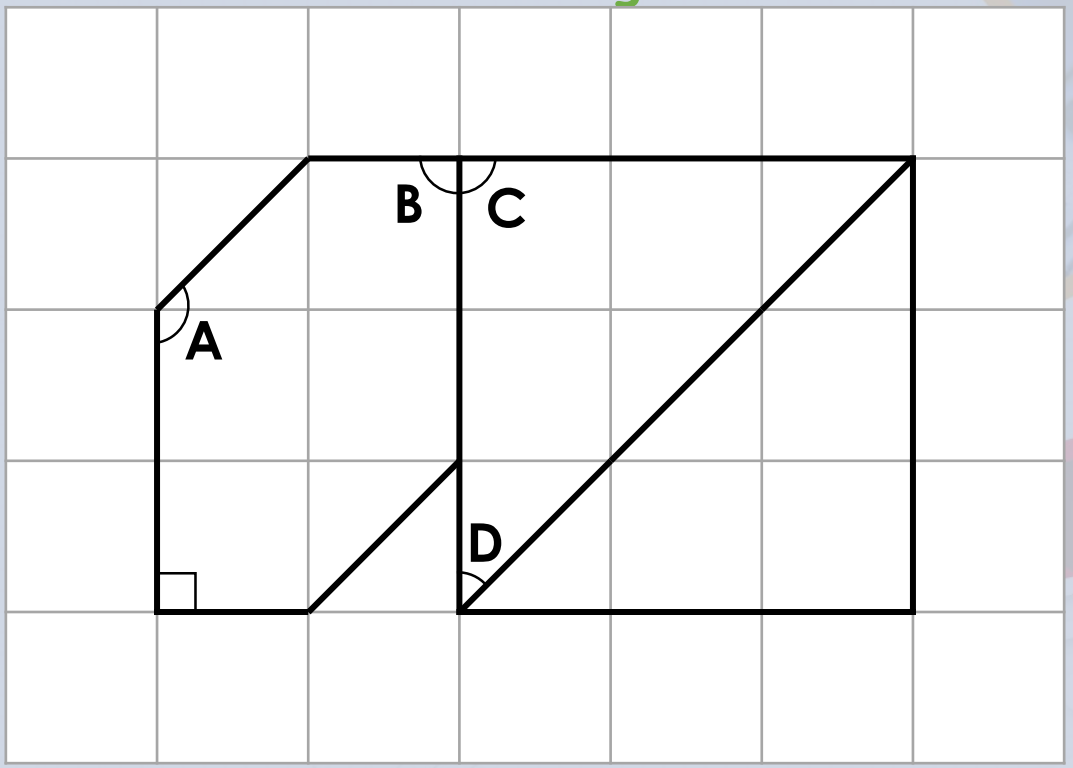
Various answers, for example:

A + B + C + D + E = 360° **A + B + C = 180°** **E + D = 180°**

B + C + D = 180° **A + E = 180°**

For these types of questions, I would like you to use a protractor to measure the angles. If you are confident you already know the angle, use reasoning to explain why.

Calculate angle B:

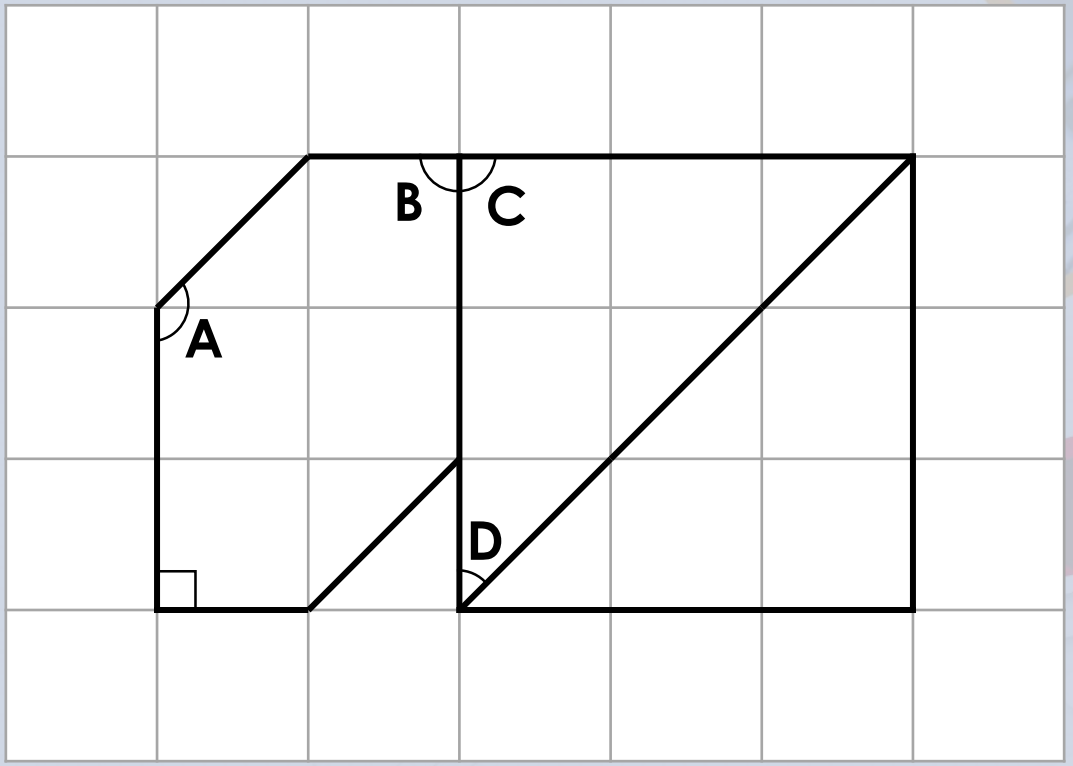


Reasoning example: I can see that both B and C are on a straight line, so combined they must equal 180 degrees. That means that both B and C are 90 degrees.

Varied Fluency 2

Calculate the angles of A, B, C and D.

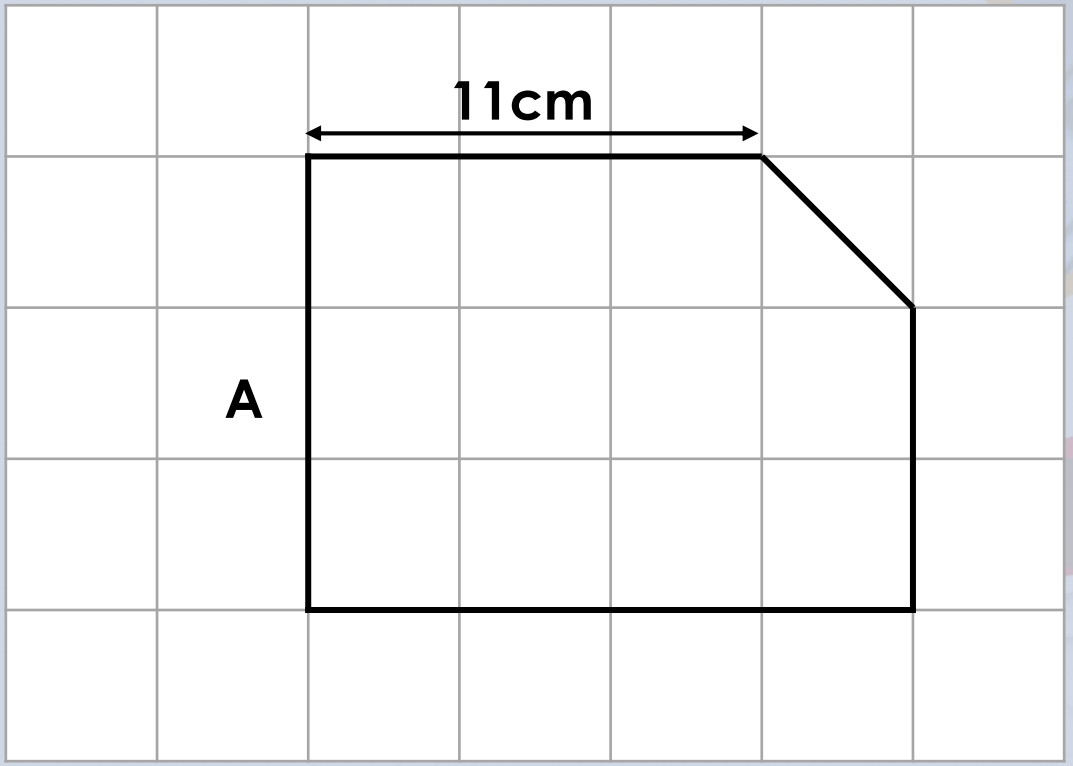
A = 135°; B = 90°; C = 90°; D = 45°



Varied Fluency 3

You will also use your shape knowledge today for finding lengths.

Side A is 16cm. True or false?

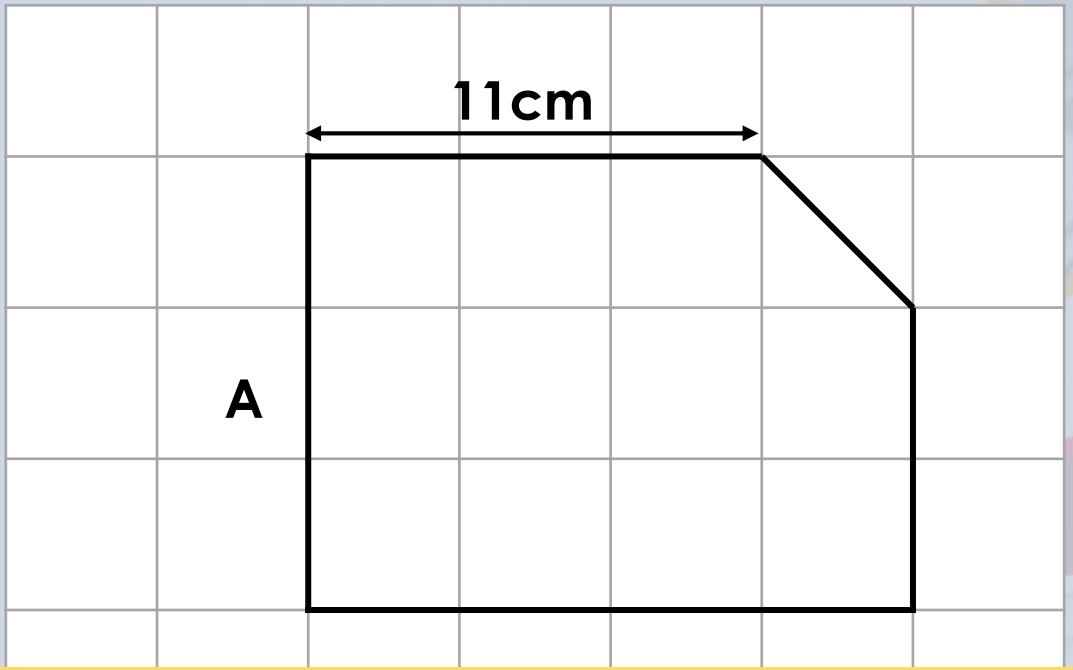


For these, count the squares to help you. Have a go at this one!

Varied Fluency 3

Side A is 16cm. True or false?

False – A is 11cm.



'We know that three squares is 11cm, therefore, as A has three squares, it must also be 11cm.' OR 'If you ignore the squares on the left, there is a square. I know squares have equal sides, so A must also be 11.'

Some questions will ask you to apply your knowledge of angles so far…

Shane and Elizabeth are calculating angles in a shape.

Shane

A right angle split into 3 will always have 3 angles of 30°.

A right angle split into 3 can have any 3 angles with a sum of 90°.

Elizabeth

Who is correct? Why?

Reasoning 2

Shane and Elizabeth are calculating angles in a shape.

Shane

A right angle split into 3 will always have 3 angles of 30°.

A right angle split into 3 can have any 3 angles with a sum of 90°.

Elizabeth

Who is correct? Why?

Elizabeth is correct because as long as the angles add up to 90°, the angles can be any size.

Shane is not correct because a right angle split into 3 would only have 30° angles if they were split equally.

Please now have a go at today's activity.

- You must use a protractor to measure the angles that are missing, unless you can use reasoning to confidently explain your answer.
- Make sure you line the vertex up with the middle point of the protractor, and the side line with 0, then follow the same number line up.
- Remember when reasoning that you can use your angles knowledge - 360° being a full turn, 90° being a right angle, 180° being a half turn, also by looking at whether the angle is acute, obtuse or reflex.