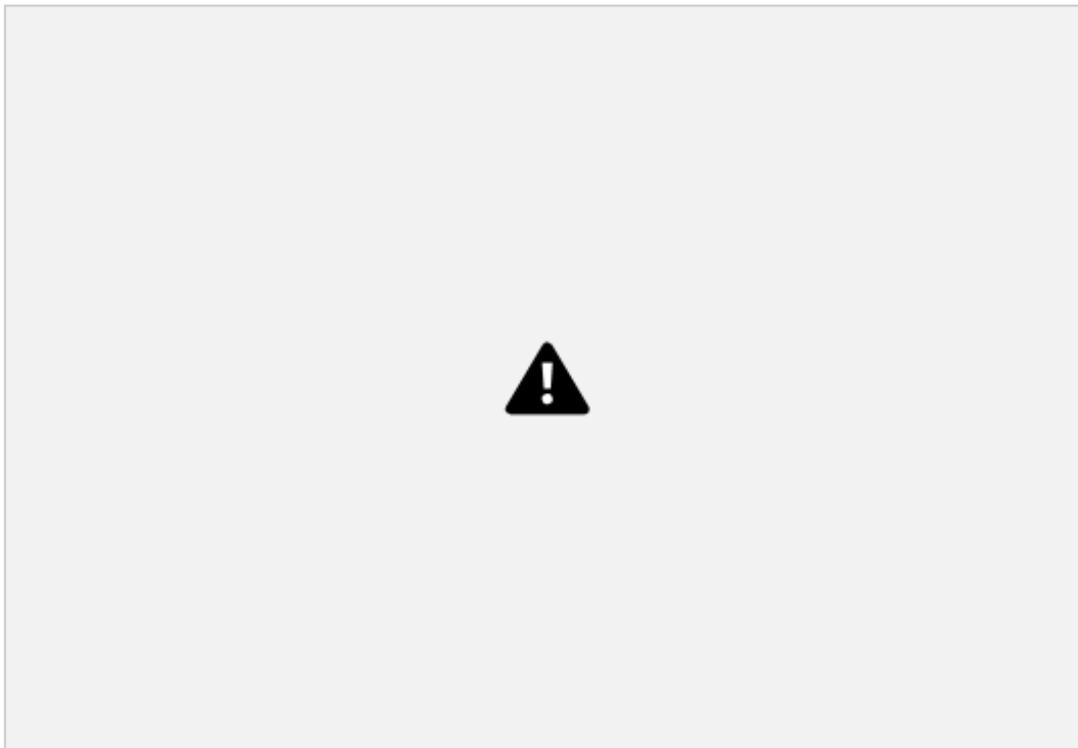


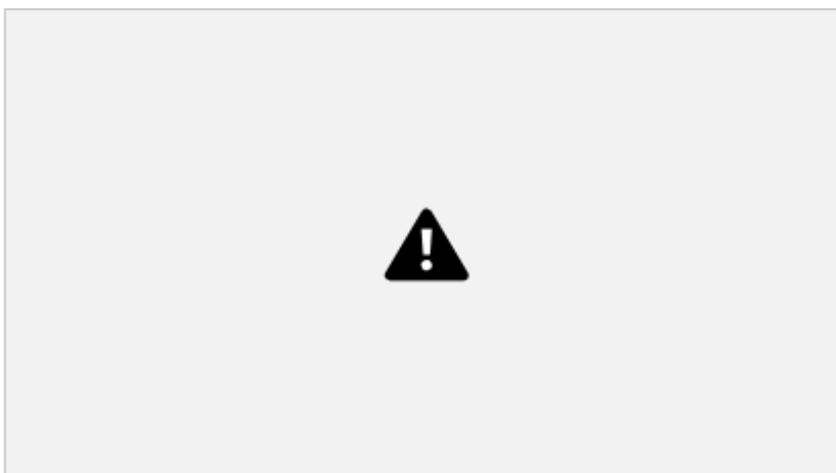
Additional Maths challenges for the week:

How good are you at estimating angles? <https://rich.maths.org/1235> Maybe you could have a go on Monday and see how much you improve each day throughout the week?

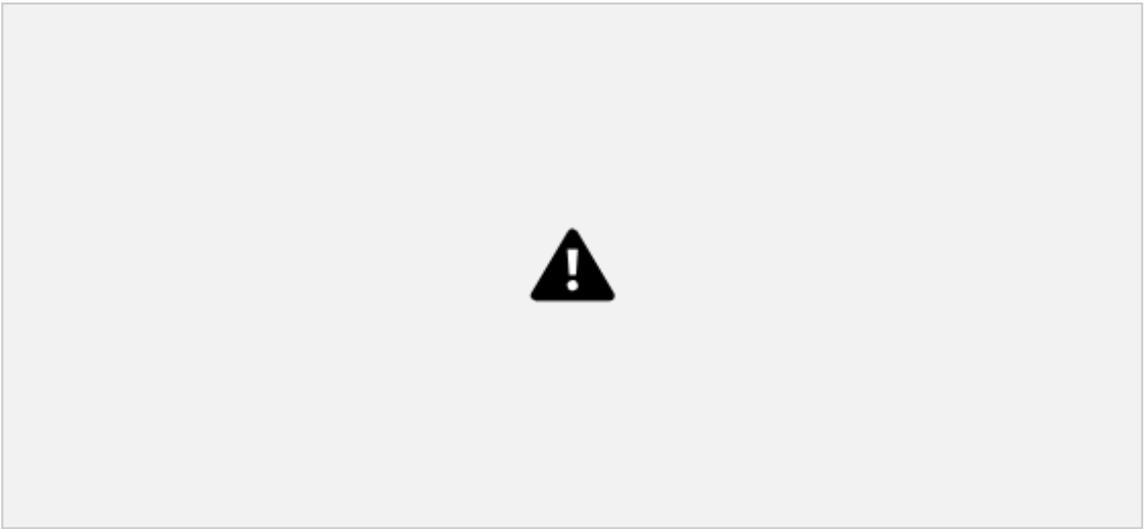


Q1.

Kirsty says,



Explain why Kirsty is **not** correct.



1 mark

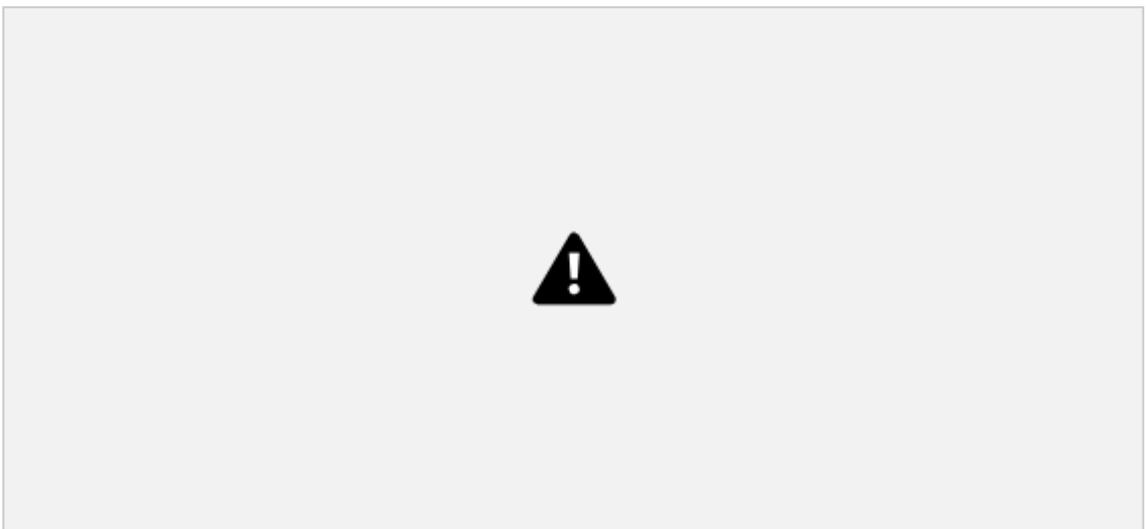
Q2.

Two of the angles in a triangle are 70° and 40°

Jack says,



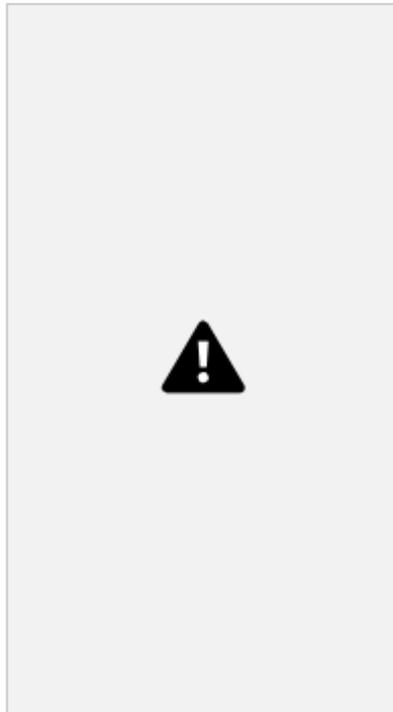
Explain why Jack is **not** correct.



1 mark

Q3.

Layla completes one-and-a-half somersaults in a dive.



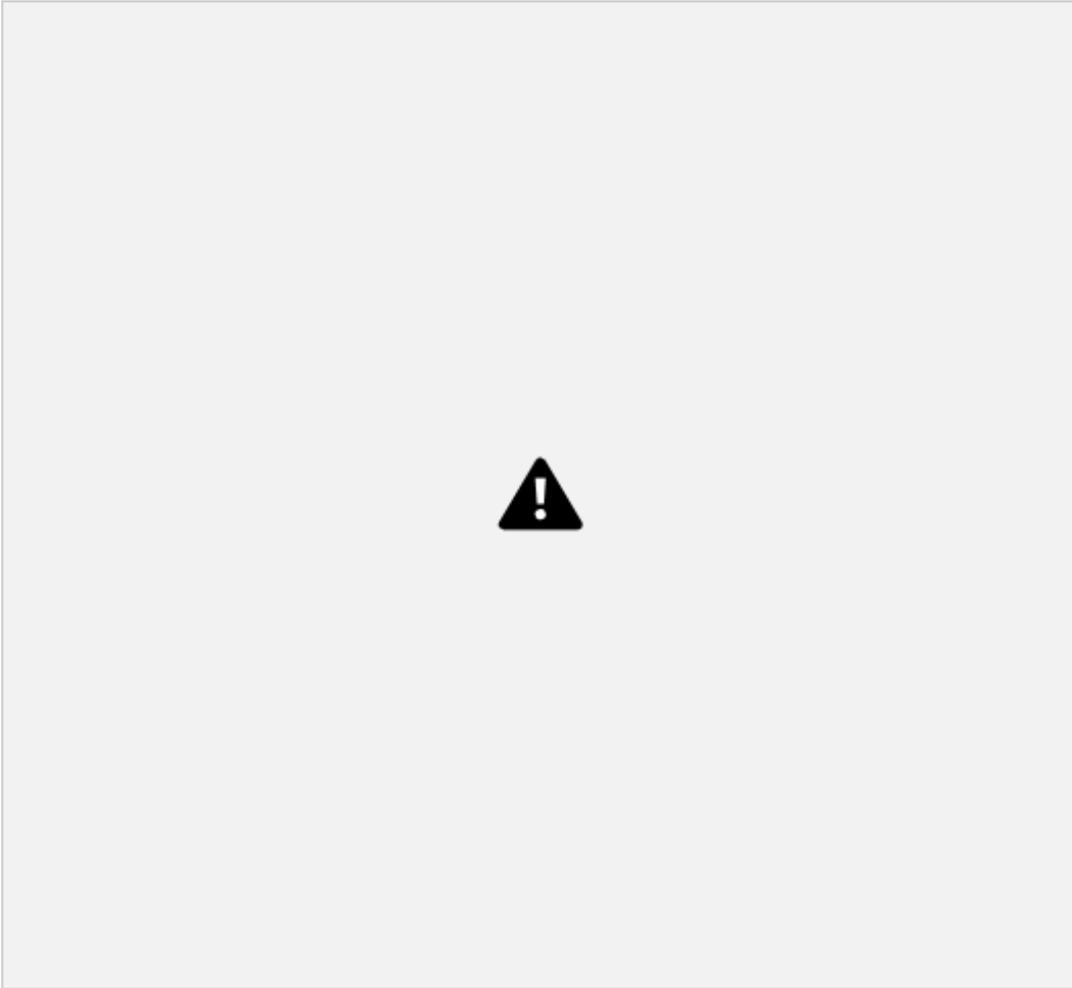
How many **degrees** does Layla turn through in her dive?



1 mark

Q4.

Here are four shapes on a square grid.



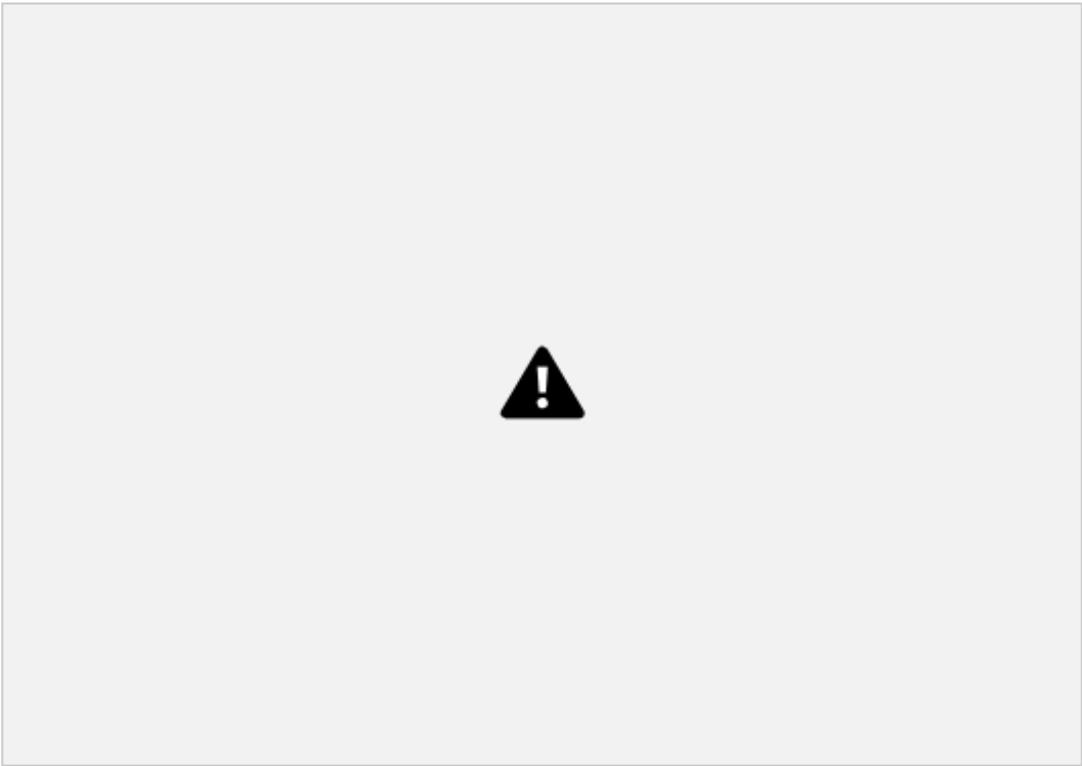
Complete the table.

	property of shape	
	is an octagon	has at least 1 right angle
shape A	x	✓
shape B	✓	x
shape C		
shape D		✓

1 mark

Q5.

Here are four triangles drawn on a square grid.



Write the letter for each triangle in the correct region of the sorting diagram.

One has been done for you.

	has a right angle	has an obtuse angle	has 3 acute angles
is isosceles	A		
is not isosceles			

2 marks

Mark schemes

Q1.

An explanation that includes a correct counter example, e.g.

- When you double 10° it is not obtuse
- $2 \times 27^\circ = 54^\circ$
- Double 45° is a right angle not obtuse

OR

An explanation that demonstrates where the statement in the question is not correct, e.g.

- If the acute angle is less than 45° then doubling it will be less than 90° , so it won't be obtuse (more than 90°).

Do not accept vague or incomplete explanations, e.g.

- *Sometimes it will be acute*
- *Some acute angles are half an obtuse angle, but not all*
- *When you double an acute angle, you get a right angle*

Do not accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation, e.g.

- $20^\circ\text{C} \times 2 = 40^\circ\text{C}$
- $20\% \times 2 = 40\%$

[1]

Q2.

An explanation showing an understanding:

- that this specific triangle has angles 70, 70 and 40

OR

- of the properties of an equilateral triangle – all angles are equal (60°)

and therefore that this triangle cannot be equilateral, e.g.

- The angles aren't 60°
- There is not a 60° angle
- It has two different angles (70° and 40°) so it can't be equilateral
- The angles aren't the same
- An equilateral triangle has $60^\circ + 60^\circ + 60^\circ$
- All the angles are the same in an equilateral triangle
- It's an isosceles triangle.

(In the context of this question, the term isosceles triangle is treated as not including equilateral triangles as a special type, as the national curriculum does not specify this at key stage 2.)

Do not accept vague or incomplete explanations, e.g.

- *The other angle is 70°*
- *They aren't (all) the same. (No reference to angles)*
- *An equilateral triangle has equal angles. (Does not say*

all.)

Do not accept explanations which include incorrect mathematics or incorrect information that is relevant to the explanation, e.g.

- $40 + 70 = 110 + 70 = 180$

[1]

Q3.

540

[1]

Q4.

Table completed as shown:

	property of shape	
	is an octagon	has at least 1 right angle
shape A	<input type="checkbox"/>	<input type="checkbox"/>
shape B	<input type="checkbox"/>	<input type="checkbox"/>
shape C	<input type="checkbox"/>	<input type="checkbox"/>
shape D	<input type="checkbox"/>	<input type="checkbox"/>

All three answers must be correct for the award of the mark.
Accept any other clear way of indicating the properties, such as 'Y' and 'N'.

[1]

Q5.

Award **TWO** marks for three letters in the correct regions of the sorting diagram, as shown:



Award **ONE** mark for two letters in the correct regions of the sorting diagram.

Do not accept letters that are written in more than one region.

Accept alternative indications such as lines drawn from the shapes to the appropriate regions of the sorting diagram.

Up to 2

[2]