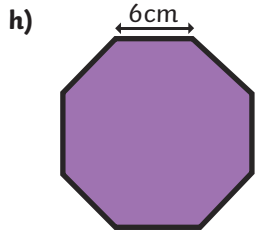
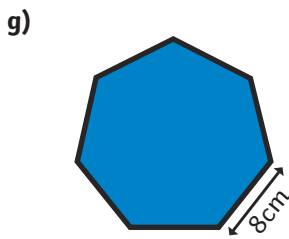
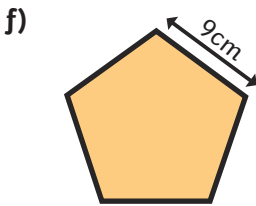
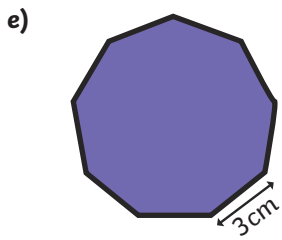
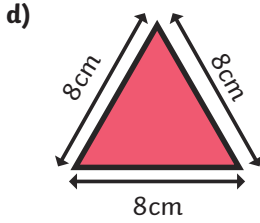
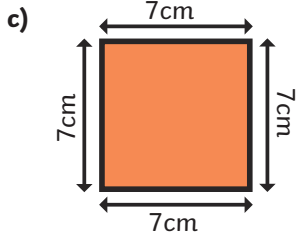
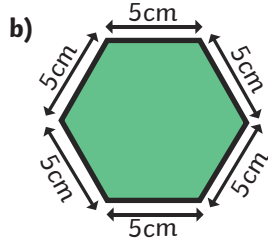
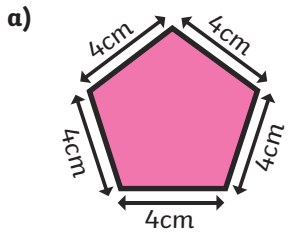


Perimeter of Regular Polygons

1) Calculate the perimeter of each regular polygon.

All images are not drawn to scale.



2) Whose shape has the smaller perimeter?

Each side of my regular pentagon is 16cm long.

Zeke



Abi

Each side of my regular nonagon is 9cm long.

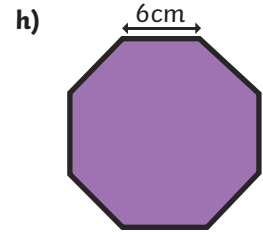
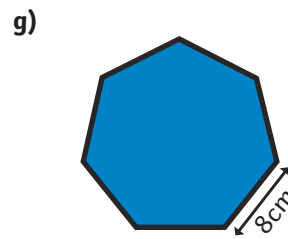
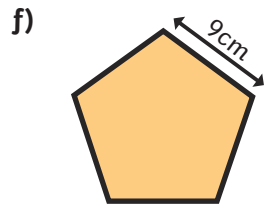
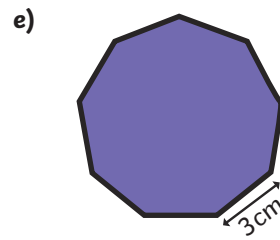
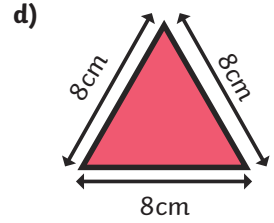
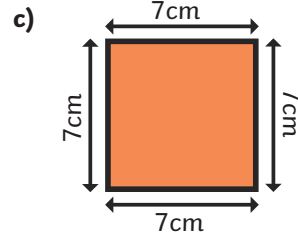
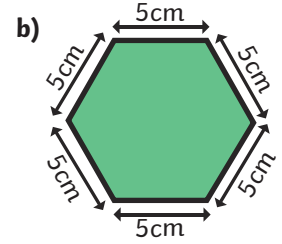
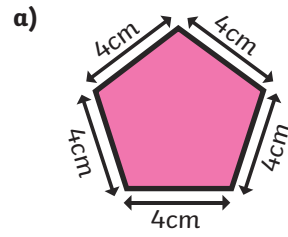


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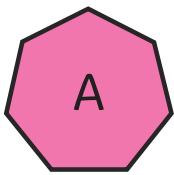


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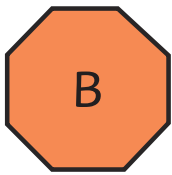
Perimeter of Regular Polygons

- 1) Are Abi and Zeke correct?
Prove it.

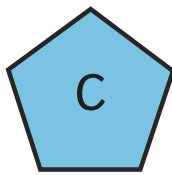
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scale.



3cm



2cm



4cm

Shape A must have an even perimeter. I know this because it has an odd number of sides and the length of each side is odd. Two odd numbers add together to make an even number.

Abi

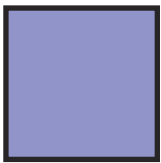


The total perimeter of shapes B and C together is 78cm. I know this because there are 13 sides in total and 13 multiplied by 6cm is 78cm.

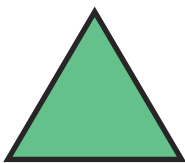
Zeke



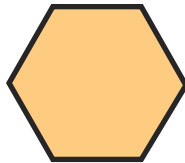
- 2) Do you agree with Felix? Explain how you know.



4cm



6cm



3cm

The hexagon has the shortest perimeter because it has the shortest sides.

Felix



- 3) Do you agree with Drew? Explain your reasoning.

It is impossible for the perimeter of a regular polygon to be 24cm when it has an odd number of sides.

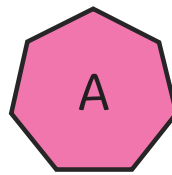
Drew



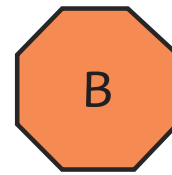
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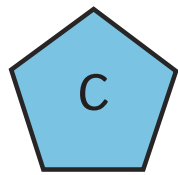
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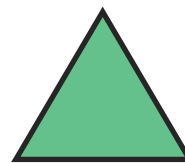
Zeke



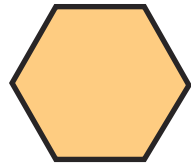
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Drew



Perimeter of Regular Polygons

1) Solve these problems.

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scale.



a)

I have drawn a square with sides that are 12cm long.
The perimeter is 48cm.
What three other regular polygons with side lengths that are whole centimetres can I draw that also have a perimeter of 48cm?

Abi



b)

I have drawn three regular polygons with side lengths that are whole centimetres.
Each one has less than ten sides. The perimeter of each shape is 36cm.
What regular polygons could I have drawn?

Elias



c)

I have drawn four different regular polygons with side lengths that are whole centimetres.
When I add all the perimeters together, the total is 100cm.
What could the four shapes be?
What would the side lengths of each shape be?

Emily



2) Use the clues to identify the name and the side lengths of this regular polygon.

The perimeter is between 40 and 50cm.

The length of each side is an odd number between 6 and 10cm.

The number of sides is equal to the length of each side.



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