

Discussion Problems

Step 7: Lengths and Angles in Shapes

National Curriculum Objectives:

Mathematics Year 5: (5G2a) [Use the properties of rectangles to deduce related facts and find missing lengths and angles](#)

Mathematics Year 5: (5G4b) [Identify: angles at a point and one whole turn \(total 360\), angles at a point on a straight line and \$\frac{1}{2}\$ a turn \(total 180\) other multiples of \$90^\circ\$](#)

About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 5 Properties of Shapes](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Lengths and Angles in Shapes

1. Look at the lengths and angles given below.

270°

Two 2cm
lines

A right
angle

A third of a
right angle

A 5cm line

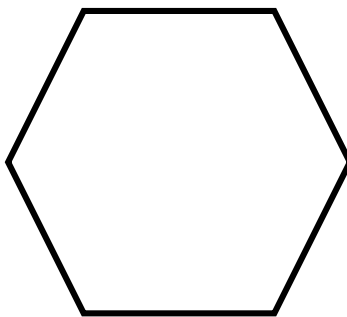


Imogen wants to create a shape that includes all of the lengths and angles above.

Using your knowledge of angles around a point and on straight lines, investigate different possible shapes that would work. Use a ruler and protractor to help you.

DP

2. Jamie is creating a mosaic out of regular hexagons. Each tile has a total perimeter of 30cm.



Not drawn to scale.

Explore the various ways he could organise his tiles so that his mosaic has a total perimeter of 120cm. Each tile must share at least one side with another tile.

DP

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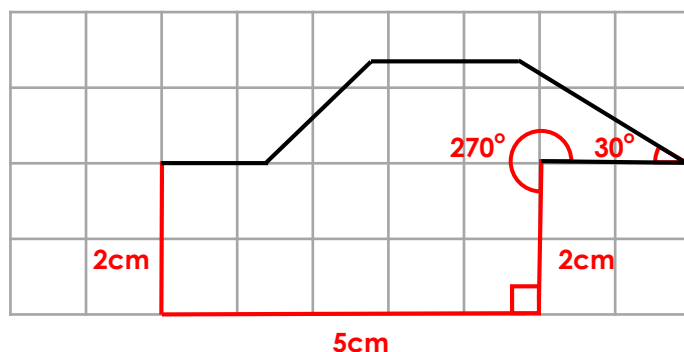
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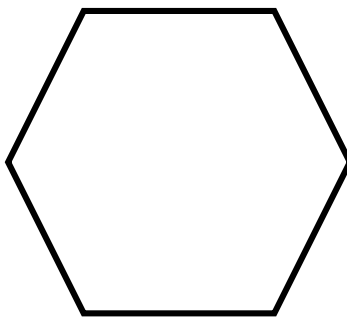
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Various answers possible including:



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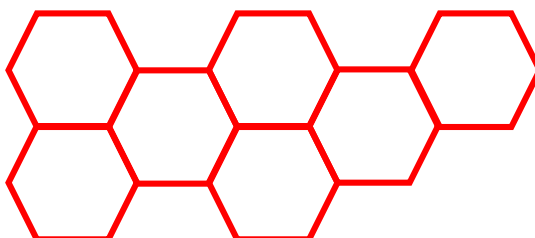
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