

Discussion Problems

Step 3: Measuring with a Protractor 2

National Curriculum Objectives:

Mathematics Year 5: (5G4a) [Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles](#)

Mathematics Year 5: (5G4c) [Draw given angles and measure them in degrees](#)

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.

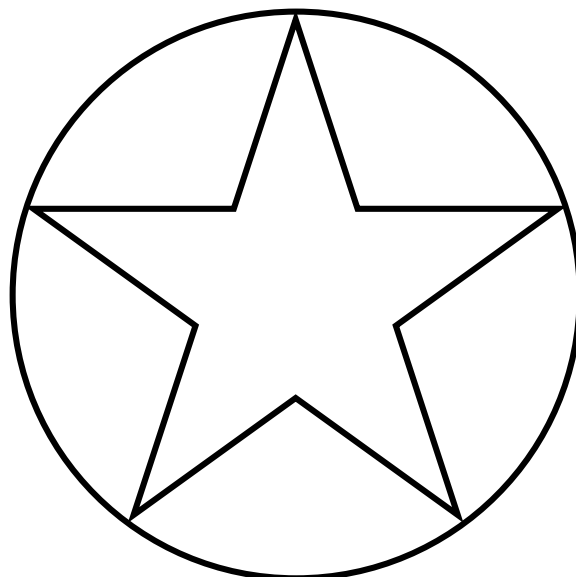
Measuring with a Protractor 2

1. Jasper is investigating how different shapes affect the angles within a circle. Using a protractor, explore and measure how many obtuse angles there are within his design.

Jasper says,



This is the only shape with obtuse angles that I could create within my circle.



Investigate whether his statement is true by using a protractor to measure your angles accurately.

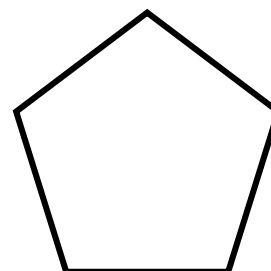
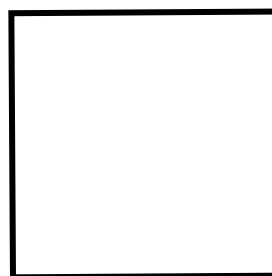
DP

2. Niamh is experimenting with different shapes to create a mosaic. She thinks that she has developed a theory.

Niamh says,



The size of the interior angles are larger if there are more sides to a shape.



Using a protractor to measure your angles accurately, investigate whether her theory is correct. What other shapes could you add to further test her theory?

DP

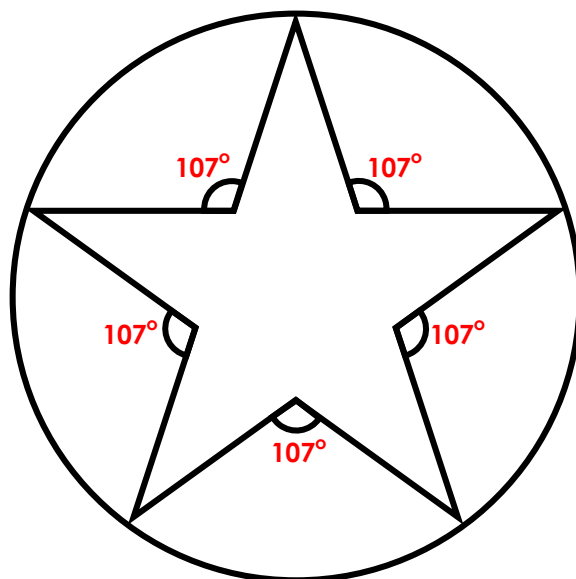
Measuring with a Protractor 2

1. Jasper is investigating how different shapes affect the angles within a circle. Using a protractor, explore and measure how many obtuse angles there are within his design. **There are 5 obtuse angles in total.**

Jasper says,



This is the only shape with obtuse angles that I could create within my circle.



Investigate whether his statement is true by using a protractor to measure your angles accurately.

Jasper is incorrect. Various possible shapes, for example:



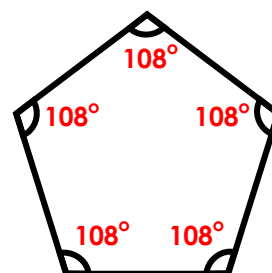
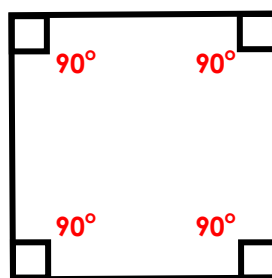
DP

2. Niamh is experimenting with different shapes to create a mosaic. She thinks that she has developed a theory.

Niamh says,



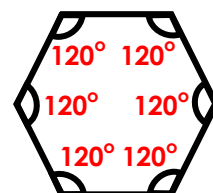
The size of the interior angles are larger if there are more sides to a shape.



Using a protractor to measure your angles accurately, investigate whether her theory is correct. What other shapes could you add to further test her theory?

Various possible answers, for example:

Yes, Niamh's theory is correct but only if all sides are equal in length.



DP