Discussion Problems
Step 4: Vertically Opposite Angles

National Curriculum Objectives:

Mathematics Year 6: (6G4b) **Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles**

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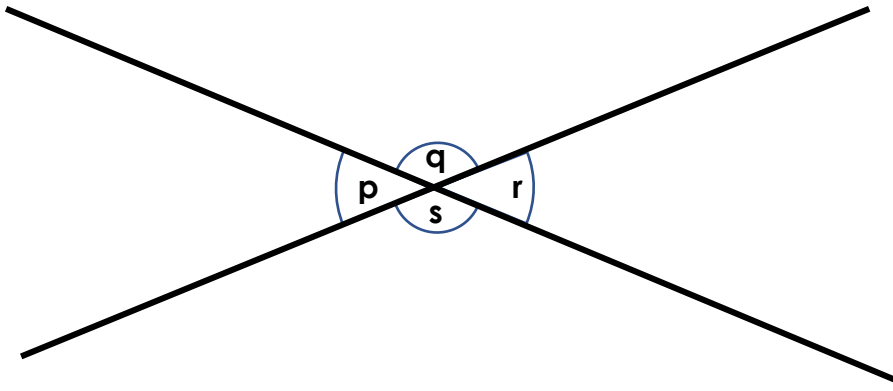
We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More **Year 6 Properties of Shapes** resources.

Did you like this resource? Don't forget to **review** it on our website.

Vertically Opposite Angles

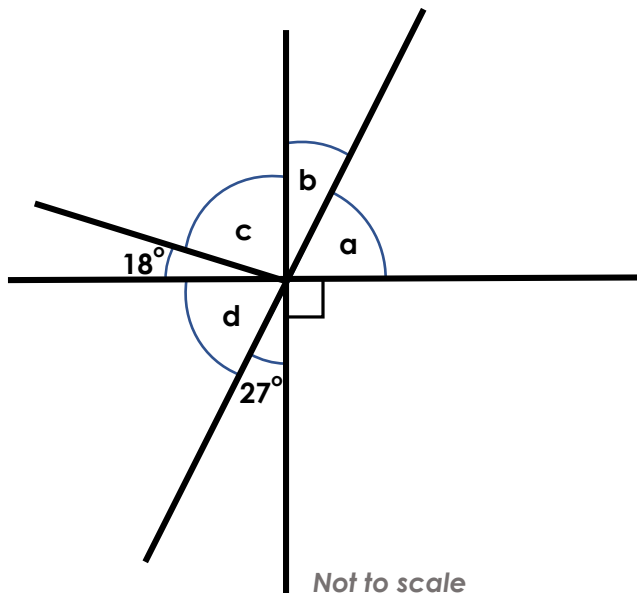## 1. Explore why vertically opposite angles are equal.

Not to scale

Use the diagram to help you.

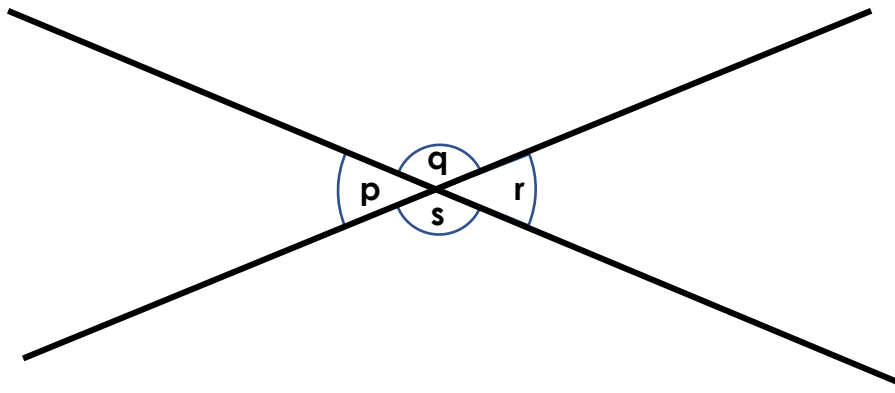## 2. Identify the opposite angles below.

18°

27°

Not to scale

Use your knowledge of vertically opposite angles to work out the missing angles.

<u>Vertically Opposite Angles</u>

1. Explore why vertically opposite angles are equal.
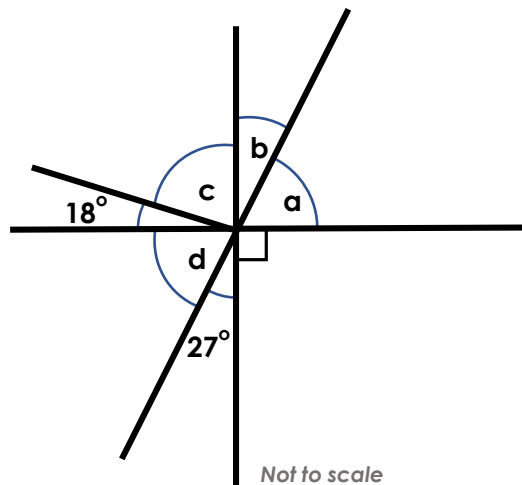

Not to scale

Use the diagram to help you.

Various possible explanations, for example: When two lines intersect, they create two pairs of angles. These are called vertically opposite angles. Angles p and s are angles on a straight line so must add up to 180°, as must angles q and r. Angles s and r are also on a straight line so must add up to 180°, as must angles p and q. In order for this to be possible, the opposite angles must be the same size. Children may also use practical examples to prove this.

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2. Identify the opposite angles below.

Not to scale

Use your knowledge of vertically opposite angles to work out the missing angles.

The angle labelled as 27° and angle b are opposite angles, as are angle a and angle d. Children may also add angles together to create vertically opposite angles as the angles in each quadrant must add up to 90°.

a = 63°, b = 27°, c = 72°, d = 63°

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Discussion Problems – Vertically Opposite Angles ANSWERS