

Year 5 Geometry Assessment: Shapes, Angles, and Coordinates

Learning objective: To identify, describe, and represent the position and properties of 2D and 3D shapes, including angles and coordinates.

Read each question carefully. Show all your working out for calculations. Use a ruler for drawing tasks. Max is counting on your precision!

Max the monkey is helping Zara the zebra design a new mural in the jungle. Zara wants to arrange her geometric patterns using precise coordinates and angles to ensure the symmetry is perfect. They are measuring the shapes of the leaves and the positioning of the tiles.

Word bank: acute · obtuse · reflex · quadrant · polygon · vertex · translation · reflection · parallel · perpendicular

1. Max draws a shape with four equal sides and four right angles. Name this 2D shape and explain why it is also classified as a parallelogram. (2 marks)

2. An angle measures 115 degrees. Is this an acute, obtuse, or reflex angle? Justify your answer using your knowledge of angle properties. (2 marks)

3. Zara plots a triangle on a coordinate grid. The vertices are at (2, 3), (2, 7), and (5, 3). Calculate the area of this triangle. Show your working. (3 marks)

4. Compare and contrast a cube and a square-based pyramid. In your answer, refer to the number of vertices, edges, and faces for each 3D shape. (4 marks)

5. If a rectangle has a perimeter of £24.00 (where each unit represents £1.00 of fencing cost) and one side is 7 units long, calculate the length of the other side. What is the area of this rectangle? (4 marks)

6. Max translates a shape 3 units to the right and 2 units down. If the original coordinate was (1, 5), what is the new coordinate? Explain the effect this translation has on the shape's orientation. (3 marks)

7. Zara is designing a pattern. She says, 'If I draw a line, I can create a reflex angle by adding an acute angle to a straight line.' Write a short paragraph justifying whether she is correct. Include a diagram description to support your reasoning. (5 marks)

Draw: Using a ruler, draw a regular pentagon and label one interior angle. Then, draw a pair of parallel lines and a pair of perpendicular lines intersecting them.

Extension challenge: Imagine you are an architect designing a new habitat for Leo the lion. Write a proposal explaining why you would choose specific polygons for the walls and floor, and how you would use coordinates to plan the layout of his den. Ensure you use the term 'symmetry' in your explanation.
Total: /25