GCSE (9–1)
MATHEMATICS

Foundation Check In - 8.01 Conventions, notation and terms

1. Write down the names of any quadrilaterals that have two pairs of parallel sides.

2. Chris draws a triangle and the angle measurements are 35°, 35° and 110°. What is the name given to this type of triangle and which angle is obtuse?

3. How many edges and vertices does a pyramid with a square base have?

4. Write the name of each quadrilateral in the correct position in the table below.

kite   trapezium   rhombus

	Rotational symmetry	No rotational symmetry
One or more pairs of diagonally opposite angles are equal		
No pairs of diagonally opposite angles are equal		

5. Which of the following are prisms?

   cuboid   square-based pyramid   cube   sphere

6. Explain what is meant by a scalene triangle.

7. Eileen is describing a cube and says it has 6 faces, 6 vertices and 12 edges. Is she correct? Give a reason for your answer.

8. A 3D shape has one less face than a triangular prism and half as many vertices as a cube. What is this 3D shape?

9. Three angles in a triangle are in the ratio 5 : 7 : 24. Calculate the three angles, stating whether each angle is an acute, obtuse, right or reflex angle.

10. A 2D shape with vertices E (1, ⁻1), F (⁻3, 1) and G (⁻3, 3) is reflected in the line $y = {}^-x$ to produce a quadrilateral. Work out the area of this quadrilateral.

Extension
An open-top cuboid box has a rectangular base and four sides. The length of its base is twice the width.
A second open-top cuboid box has a base length 5 inches longer and base width 2 inches narrower than the first box. The perimeter of its base is 120 inches.
The height of each box is 10 inches.

Jose has to paint the outside of each of the boxes. Which box has the greatest surface area to paint and by how much?

Answers

1. Parallelogram, square, rectangle, rhombus

2. Isosceles triangle and the obtuse angle is 110°.

3. 8 edges and 5 vertices

4.

	Rotational symmetry	No rotational symmetry
One or more pairs of diagonally opposite angles are equal	Rhombus	Kite
No pairs of diagonally opposite angles are equal		Trapezium

5. Cuboid and cube

6. A scalene triangle has three sides of different lengths and no angles are equal.

7. No, she is not correct as a cube has 6 faces, 8 vertices and 12 edges.

8. Triangular-based pyramid

9. 25° (acute), 35° (acute) and 120° (obtuse)

10. $8\,cm^2$

Extension

Surface area of the first box = 1862 inches^2.
Surface area of the second box = 1931 inches^2.
The second box has the largest surface area by 69 inches^2.

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Assessment Objective	Qu.	Topic	R	A	G
AO1	1	Identify quadrilaterals from their properties			
AO1	2	Know the terms for triangles and angles			
AO1	3	Know the properties of a 3D shape			
AO1	4	Know the properties of quadrilaterals			
AO1	5	Identify prisms			
AO2	6	Describe the properties of a scalene triangle			
AO2	7	Identify the number of vertices, edges and faces of a cube			
AO2	8	Know the properties of 3D shapes			
AO3	9	Use triangle properties to solve a problem			
AO3	10	Use x and y coordinates in a plane geometry problem			

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