Test answers - Properties of 2D and 3D shapes

Year: Year 2 · Duration: 30 minutes · /20

Answer to Question 1 (4 marks)

a. Count the straight sides of the first shape: 5. A shape with 5 sides is a **pentagon**, so it has **5 sides**. (1 mark)
b. The second shape has 8 sides, so it is an **octagon**. Each side ends at a vertex, so it has **8 vertices**. (1 mark)
c. Compare 8 sides and 5 sides: $8 - 5 = \mathbf{3}$. The octagon has 3 more sides than the pentagon. (2 marks: 1 for subtracting, 1 for 3)

Answer to Question 2 (4 marks)

a. The shape has two flat circle faces and one curved face joining them, like a tin of soup. It is a **cylinder**. (1 mark)
b. A cube has **6 faces** (top, bottom, 4 sides), **12 edges** (4 at the top, 4 at the bottom, 4 going up) and **8 vertices** (4 at the top, 4 at the bottom). (2 marks: all three correct; 1 mark for two)
c. A shape with a curved face can roll. A **sphere** rolls in every direction; a cylinder or a cone also rolls. (1 mark)

Answer to Question 3 (4 marks)

a. A square can be folded in half in 4 ways: down the middle, across the middle and along both diagonals. It has **4** lines of symmetry. (1 mark)
b. A rectangle only folds exactly down the middle and across the middle, so it has **2** lines of symmetry. (1 mark)
c. **No.** Cutting along a diagonal makes two triangles that are the same size, but when you fold along the diagonal one triangle does not land exactly on the other. So a diagonal is not a line of symmetry of a rectangle. (2 marks: 1 for no, 1 for the reason)

Answer to Question 4 (4 marks)

a. Count the sides of each shape. Only the **square** and the **rectangle** have exactly 4 sides. (1 mark)
b. A shape has as many vertices as sides, so 6 vertices means 6 sides: the **hexagon**. (1 mark)

c. The **circle** is the only shape in the list with a curved side. (1 mark)
d. The triangle has 3 sides, the square and rectangle 4, the hexagon 6 and the circle no straight sides. The fewest straight sides belongs to the **triangle**, with 3. (1 mark)

Answer to Question 5 (4 marks)

a. A cuboid is a box shape with **6 faces**: top, bottom, front, back and two ends. It has **8 vertices**, 4 at the top and 4 at the bottom. (2 marks: 1 for each number)
b. The box has 12 edges and the ribbon covers 4 of them: $12 - 4 = \mathbf{8}$ edges not covered. (1 mark)
c. A cylinder has a flat circle at the top and another at the bottom, so the tin has **2** flat faces, plus one curved face. (1 mark)