WONDERLEARNERZ PRIMARY ACADEMY â€" OFFICIAL ANSWER KEY & MARKING SCHEME

Shapes and Geometry - Worksheet 3 [ANSWER KEY]

Grade 4 | Mathematics | Ch 1: Shapes and Geometry | Total Marks: 19 | Time: 30 Minutes

Q1. How many straight edges does a standard cuboid box have? [1 Mark]

Correct Answer: 12 straight edges

Explanation: A cuboid has 6 rectangular faces, 12 straight edges, and 8 vertices.

Q2. Which 2D shape has exactly 3 straight sides and 3 sharp corners (vertices)? [1 Mark]

Correct Answer: Triangle

Explanation: A triangle is a 3-sided polygon with 3 vertices.

Q3. How many flat faces and curved surfaces does an upright solid cylinder possess? [1 Mark]

Correct Answer: 2 flat circular faces and 1 curved surface

Explanation: A cylinder has 2 flat circular ends and 1 curved surface connecting them.

Q4. What 2D shape does a soup can (cylinder) appear to be when viewed directly from the side at eye level? [1 Mark]

Correct Answer: Rectangle

Explanation: At exact eye level from the side, a cylinder's outline forms a rectangle.

Q5. At the Packaging Design Factory, an artisan glues 4 wooden cubes together in a straight row. How many total flat square faces were on the cubes before gluing? [1 Mark]

Correct Answer: 24 flat faces

Explanation: Each cube has 6 flat faces. 4 x 6 = 24 flat faces.

Q6. A stage designer paints all exterior sides of 3 rectangular display boxes (cuboids). If each box has 6 flat faces, how many faces are painted across all 3 boxes? [1 Mark]

Correct Answer: 18 faces

Explanation: 3 x 6 faces = 18 faces.

Q7. In a toy set, children assemble 5 cylindrical towers and 4 cubic blocks. How many circular flat faces are there in total on the towers? [1 Mark]

Correct Answer: 10 circular faces

Explanation: Each cylinder has 2 circular faces: 5 x 2 = 10 circular faces.

Q8. Identify the mystery solid: 'I have 0 flat faces, 0 straight edges, and 1 continuous curved surface. I can roll smoothly in any direction.' [1 Mark]

Correct Answer: Sphere

Explanation: A sphere has no flat faces, no straight edges, and can roll in any direction.

Q9. Complete the geometry equation: [?] Cubes + 1 Cylinder = 50 edges in total. How many cubes are there? [1 Mark]

Correct Answer: 4 cubes

Explanation: A cylinder has 2 edges. Total - 2 = 48. Each cube has 12 edges, so 48 / 12 = 4 cubes.

Q10. A student claims: 'A rectangle is always a square because both have 4 right angles.' What is the conceptual error in this statement? [1 Mark]

Correct Answer: All squares are rectangles, but not all rectangles are squares because a rectangle's adjacent sides can have different lengths

Explanation: A square requires all 4 sides to be equal, which is not required for all rectangles.

Q11. Liam looks at an upright traffic cone from directly above and says: 'The top view **[1 Mark]**
is a triangle.' Why is Liam incorrect?
Correct Answer: From directly above, a cone appears as a circle with a center point (apex), not a triangle
Explanation: A cone appears triangular from the front/side, but circular from directly above.

Q12. Why can cubes and cuboids be stacked tightly into high storage walls without **[2 Marks]**
gaps, while spheres leave empty space?
Correct Answer: Cubes and cuboids have flat, rectangular faces that tessellate without gaps, whereas spheres only touch at single curved points
Explanation: Flat parallel surfaces touch completely and distribute weight evenly, allowing gap-free tessellation in 3D.

Q13. If you slice a standard solid cuboid with a single straight flat cut parallel to **[2 Marks]**
its base, what 2D cross-section shape is revealed?
Correct Answer: A rectangle (or square)
Explanation: Cutting parallel to the rectangular base produces a matching rectangular cross-section.

Q14. An architect builds a tower by gluing 4 cubes in a vertical stack. If each cube **[2 Marks]**
has 6 faces, and adjacent cubes share 1 glued face each, how many exposed outer faces does the tower have?
Correct Answer: 18 faces
Explanation: Each glue joint hides 2 faces. For 4 cubes, there are 3 joints hiding 6 faces: 24 - 6 = 18 exposed faces.

Q15. A packaging designer lines all 12 edges of a cube with reflective tape. If each **[2 Marks]**
edge is 15 cm long, what is the total length of reflective tape required?
Correct Answer: 180 cm
Explanation: 12 edges x 15 cm = 180 cm.