

Class 4 Mathematics Advanced MCQ Practice Test (Original Set)

Topic: Higher-Level Geometry & Spatial Reasoning

Total Questions: 10

Q1. A straight line intersects two completely parallel horizontal lines. What can we say about the distance between the two parallel lines at any given point?

- A) It increases B) It decreases C) It remains exactly the same D) It changes randomly

Q2. If you cut a standard wooden cuboid exactly in half with one straight slice parallel to its side, what happens to the total number of faces?

- A) Increases by 1 B) Increases by 2 C) Decreases by 2 D) Remains the same

Q3. A large circle contains a smaller circle inside it. The radius of the large circle is exactly equal to the diameter of the small circle. If the small circle's radius is 4 cm, what is the large circle's diameter?

- A) 8 cm B) 12 cm C) 16 cm D) 24 cm

Q4. Look at the complex shape pattern sequence:

[Circle with 1 line] -> [Triangle with 2 lines] -> [Square with 3 lines].

What should be the properties of the next shape in the sequence?

- A) Pentagon with 4 lines B) Hexagon with 4 lines C) Pentagon with 5 lines D) Square with 4 lines

Q5. How many lines of symmetry can you find in a regular hexagon (a flat shape with 6 equal sides and 6 equal angles)?

- A) 3 B) 4 C) 6 D) 12

Q6. You trace the bottom flat face of a solid cone onto a piece of paper using a pencil. What geometry figure did you just draw?

A) Triangle B) Point C) Rectangle D) Circle

Q7. Imagine a line segment AB that is 14 cm long. A point C is placed exactly in the middle of AB. A circle is drawn using C as the center, and its boundary passes right through point A. What is the length of the diameter of this circle?

A) 7 cm B) 14 cm C) 21 cm D) 28 cm

Q8. Which of the following statements about 3D shapes is absolutely correct?

A) A cylinder has more vertices than a cube B) A triangular pyramid has 4 faces C) A sphere has 2 flat edges D) A cuboid has 10 vertices

Q9. A rectangular piece of paper is folded exactly in half vertically, and then folded in half horizontally. If you punch a single circular hole directly through the middle of the folded paper and then completely open it back up, how many holes will be visible on the paper?

A) 1 hole B) 2 holes C) 3 holes D) 4 holes

Q10. An insect walks along the edges of a standard solid cube. It starts at one vertex and wants to visit every single vertex of the cube exactly once without ever repeating a vertex. Is this path possible?

A) Yes, easily B) No, impossible C) Only if it cuts across a face D) Only if it counts edges as vertices

ANSWER KEY WITH LOGIC HINTS:

1. C (Parallel lines maintain an identical perpendicular distance everywhere)
2. B (Cutting creates 2 brand new flat surfaces/faces where the slice was made)
3. C (Small radius = 4 cm -> Small diameter/Large radius = 8 cm -> Large diameter = 16 cm)
4. A (Both the number of polygon sides and internal lines increase by 1 each step)

5. C (A regular polygon always possesses as many lines of symmetry as it has sides)
6. D (The base of a cone is a perfect flat circle)
7. B (Since C is the middle, CA is the radius [7 cm]. The diameter is double the radius, which brings it back to 14 cm)
8. B (A triangular pyramid, or tetrahedron, is built from 4 distinct triangular faces)
9. D (Folding twice creates 4 layers of paper, so 1 punch goes through all 4 layers)
10. A (Yes, a continuous path can visit all 8 corners cleanly—known mathematically as a Hamiltonian path)