# Worksheet: Exploring Some Geometric Themes

IGCSE · Class 8 · Mathematics · 8 questions · 14 marks

Name: _____ Date: _____ Score: _____ / 14

**Q1.** In the Sierpinski Carpet, how many small squares remain after step 3? *[1 mark]*

A) 81

B) 512

C) 729

D) 64

**Q2.** How many faces, edges and vertices does a hexagonal prism have? *[1 mark]*

A) 8 faces, 18 edges, 12 vertices

B) 8 faces, 12 edges, 18 vertices

C) 7 faces, 12 edges, 7 vertices

D) 6 faces, 12 edges, 8 vertices

**Q3.** A cylinder has base radius 7 cm and height 10 cm. What are the sidelengths of the rectangle in its net? (Take À 22/7) *[1 mark]*

A) 22 cm × 10 cm

B) 7 cm × 10 cm

C) 44 cm × 10 cm

D) 154 cm × 10 cm

**Q4.** Which of the following shapes can NEVER be the projection of a cube? *[1 mark]*

A) A pentagon

B) A regular hexagon

C) A square

D) A rectangle

**Q5.** The perimeter of the Koch Snowflake at step 0 is 3 units. What is it at step 3? *[1 mark]*

A) 4 units

B) 12 units

C) 192 units

D) 64/9 units

**Q6.** A cuboid measures 8 cm × 6 cm × 5 cm. Find its surface area, and describe how many rectangles of each size its net contains. *[3 marks]*

**Q7.** The corners of an equilateral triangle of side 6 cm are cut off as far as the marks that divide each side into thirds. Name the shape that remains, give its side length, and find what fraction of the original area it covers. *[3 marks]*

**Q8.** An ant at one corner of a room 8 m long, 6 m wide and 4 m high must crawl along the walls, floor or ceiling to reach the opposite corner. Find the length of the shortest such path, and explain why it is not 18 m. *[3 marks]*