

GCSE Maths: Properties of 3D solids (Foundation): worksheet

GCSE Maths - Volume, Surface Area and 3D Shapes - Foundation - Lesson 19.1

Name: _____

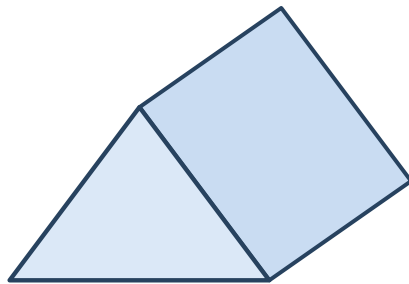
Date: _____

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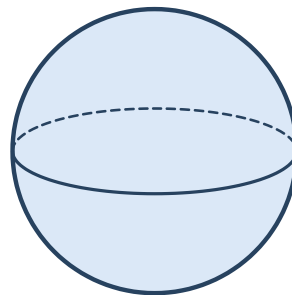
17 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch19-volume-surface-area-3d/foundation/properties-of-3d-solids/

Exercise 19A Properties of 3D solids Non-calculator

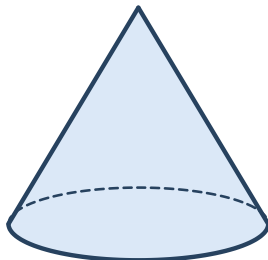
1 Write down the name of each solid.



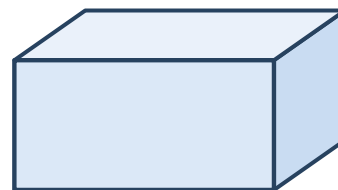
A



B



C



D

(a) Solid A

Answer: _____

(b) Solid B

Answer: _____

(c) Solid C

Answer: _____

(d) Solid D

Answer: _____

2 Write down the number of faces, edges and vertices of each solid.

(a) a cube

Answer: _____

(b) a triangular prism

Answer:

(c) a square-based pyramid

Answer:

(d) a hexagonal prism

Answer:

3 For each solid, write down the number of flat faces, curved surfaces, edges and vertices.

(a) a cylinder

Answer:

(b) a cone

Answer:

(c) a sphere

Answer:

4 Name the solid described.

(a) It has 6 square faces.

Answer:

(b) It has 2 triangular faces and 3 rectangular faces.

Answer:

(c) It has 1 square face and 4 triangular faces.

Answer:

(d) It has 1 flat circular face, 1 curved surface and 1 vertex.

Answer:

5 A cuboid has 12 edges. Four edges are 5 cm long, four are 3 cm long and four are 2 cm long. Work out the total length of all 12 edges.

Answer:

6 Work out the number of faces, edges and vertices of each solid.

(a) a pentagonal prism

Answer:

(b) a pentagonal-based pyramid

Answer:

(c) a triangular-based pyramid (tetrahedron)

Answer:

7 Samira makes a model of a square-based pyramid from straws. The straws for the base are each 8 cm long and the four straws that slope up to the top are each 9 cm long. Work out the total length of straw she uses.

Answer:

8 Name the solid with each set of numbers.

(a) 5 faces, 9 edges and 6 vertices

Answer:

(b) 5 faces, 8 edges and 5 vertices

Answer:

(c) 4 faces, 6 edges and 4 vertices

Answer:

(d) 7 faces, 15 edges and 10 vertices

Answer:

9 Use Euler's formula, $V - E + F = 2$, to find the missing number for each solid.

(a) Hexagonal prism: $F = 8$, $E = 18$. Find V .

Answer:

(b) Hexagonal prism: $V = 12$, $F = 8$. Find E .

Answer:

(c) Square-based pyramid: $V = 5$, $E = 8$. Find F .

Answer:

10 A prism has 24 edges. (a) How many sides does the end face have? (b) How many faces does the prism have?

(a) How many sides does each end have?

Answer:

(b) How many faces does the prism have?

Answer:

11 A pyramid has 10 faces. How many edges and how many vertices does it have?

Answer:

12 Ali says, "A cone has 2 faces, 1 edge and 1 vertex." Is Ali correct? Explain.

Answer:

13 Write "True" or "False" for each statement and give a reason.

(a) A cube is a type of cuboid.

Answer:

(b) A sphere has no edges and no vertices.

Answer:

(c) Every prism has a rectangle as its cross-section.

Answer:

(d) Every pyramid has an even number of faces.

Answer:

14 A solid has 6 vertices and 10 faces. (a) Use Euler's formula to work out its number of edges. (b) Could the solid be a prism? Give a reason.

(a) Number of edges

Answer:

(b) Could it be a prism?

Answer:

15 Name the solid for each object.

(a) A tin of beans

Answer:

(b) A football

Answer:

(c) A dice

Answer:

(d) An ice-cream cone (the cone only)

Answer:

16 Complete: a cube has ___ faces, ___ edges and ___ vertices.

Answer:

17 Which of these solids has a curved surface: cube, cylinder, triangular prism, sphere, square-based pyramid?

Answer: