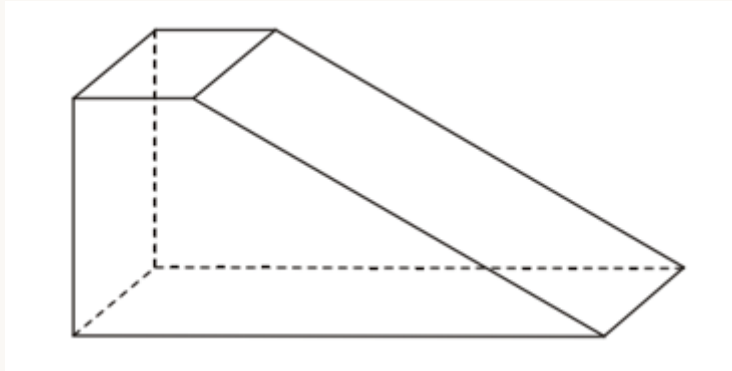


PROPERTIES OF 3D SOLIDS & PRISMS

Mastery Worksheet

I DO

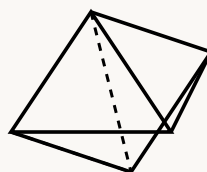
1. Here is a solid prism.



- (a) Write down the number of faces this prism has.
- (b) Write down the number of vertices this prism has.

WE DO

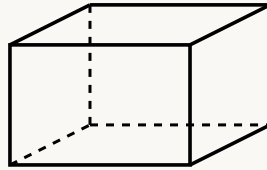
2. Here is a triangular prism.



- (a) Write down the number of faces this prism has.
- (b) Write down the number of vertices this prism has.
- (c) Write down the number of edges this prism has.

YOU DO 1

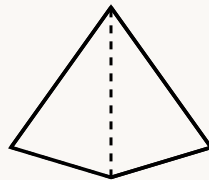
3. Here is a cuboid.



- (a) Write down the number of faces this cuboid has.
- (b) Write down the number of vertices this cuboid has.
- (c) Write down the number of edges this cuboid has.

YOU DO 2

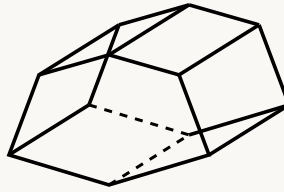
4. Here is a square-based pyramid.



- (a) Write down the number of faces this pyramid has.
- (b) Write down the number of vertices this pyramid has.
- (c) Write down the number of edges this pyramid has.

CHALLENGE 1

5. A solid prism has a cross-section that is a regular pentagon.



- (a) Write down the number of faces the prism has.
- (b) Write down the number of vertices the prism has.
- (c) Write down the number of edges the prism has.

CHALLENGE 2

6. A polyhedron has F faces, V vertices, and E edges.

For a prism with an n -sided cross-section, write down formulae in terms of n for:

- (a) The number of faces (F)
- (b) The number of vertices (V)
- (c) Verify Euler's relation ($F + V - E = 2$) for this prism.

ANSWERS & WORKED SOLUTIONS**1 (I Do)**

- (a) 5 faces (2 trapeziums, 3 rectangles)
- (b) 6 vertices

2 (We Do)

- (a) 5 faces (2 triangles, 3 rectangles)
- (b) 6 vertices
- (c) 9 edges

3 (You Do 1)

- (a) 6 faces
- (b) 8 vertices
- (c) 12 edges

4 (You Do 2)

- (a) 5 faces (1 square, 4 triangles)
- (b) 5 vertices
- (c) 8 edges

5 (Challenge 1)

- (a) 7 faces (2 pentagons, 5 rectangles)
- (b) 10 vertices
- (c) 15 edges

6 (Challenge 2)

- (a) $F = n + 2$
- (b) $V = 2n$
- (c) $E = 3n$. Checking: $(n + 2) + 2n - 3n = 2$, which satisfies Euler's formula.