Cross-sections of prisms

6 questions | 11 marks

Equivalent correct methods earn the corresponding marks.

1. Name a cross-section parallel to an end of a pentagonal prism. [1 mark]

A prism repeats its end shape along its length.

Answer: A pentagon congruent to the end.

2. Name a cross-section of a cylinder cut parallel to its circular base. [1 mark]

The cut has the same orientation as a circular end.

Answer: A circle.

3. A prism has a rectangular end 7 cm by 4 cm. Find the area of a parallel cross-section. [2 marks]

$A = 7(4) = 28$ cm².

Answer: 28 cm².

4. A triangular prism has end base 8 m and end perpendicular height 3 m. Find the end area.
[2 marks]

$A = \frac{1}{2}(8)(3) = 12$ m².

Answer: 12 m².

5. A student applies cross-sectional area × length to a pyramid. Explain the problem.
[3 marks]

The prism rule relies on a constant cross-section.

A pyramid narrows towards its vertex.

Answer: A pyramid’s parallel cross-sections change size, so one fixed end area cannot be used throughout.

6. A solid has a circular base and tapers to one point. Is it a prism or a cylinder? Explain.
[2 marks]

Its cross-sections parallel to the base become smaller.

A prism or cylinder has a constant cross-section.

Answer: Neither; it is a cone.