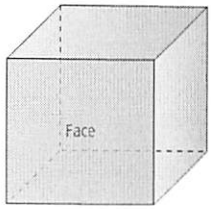
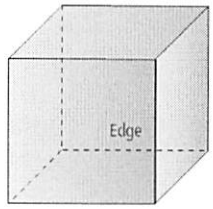
Lesson 14-1: Analyzing Three-Dimensional Figures

Parts of a Three-Dimensional Figure

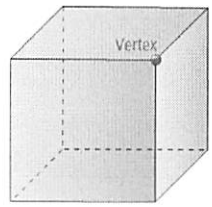
A **face of a three-dimensional figure** is a flat surface shaped like a polygon.



An **edge of a three-dimensional figure** is a segment formed by the intersection of two faces.

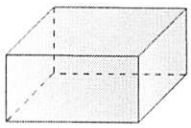


A **vertex of a three-dimensional figure** is a point where three or more edges meet.



Example

Decide whether each statement is *true* or *false*.



True **False**

a. The figure is a three-dimensional figure.

b. The figure has three faces.

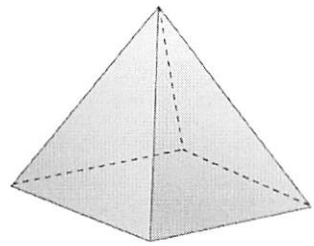
c. The faces are triangles.

d. The figure has 12 edges.

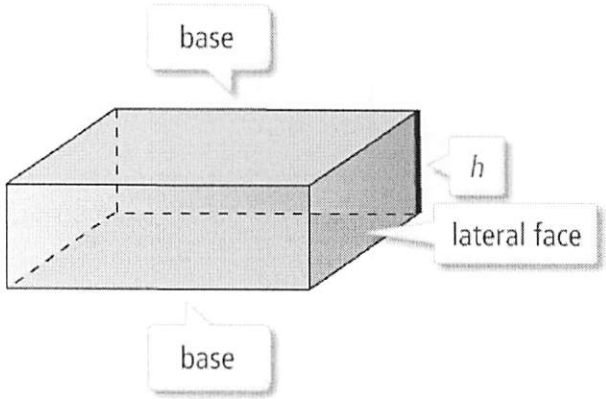
e. The figure has six vertices.

Got It?

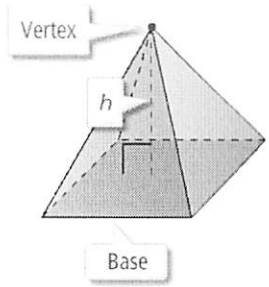
How many faces, edges, and vertices does the three-dimensional figure have?

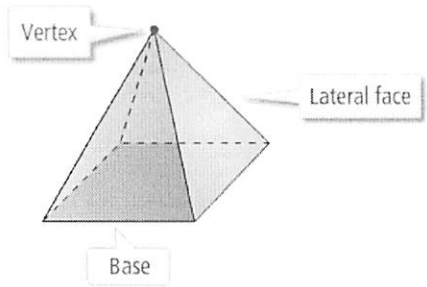


A **prism** is a three-dimensional figure with two parallel polygonal faces that are the same size and shape.



A **pyramid** is a three-dimensional figure with a base that is a polygon and triangular faces that meet at a vertex.





Example

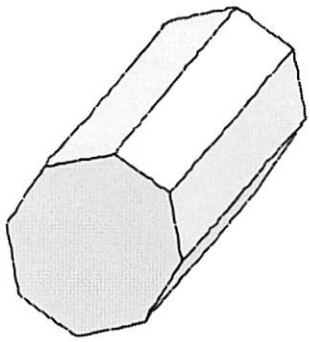
a. How many bases does the prism have? _____

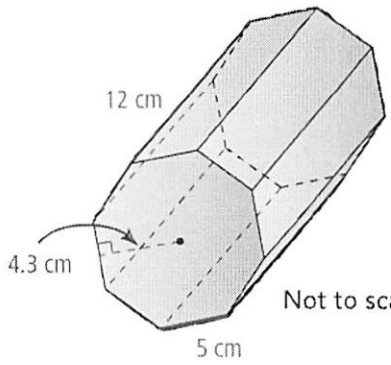
b. What shape does a base of the prism have? _____

c. Name the prism. _____

d. How many lateral faces does the prism have? _____

e. What is the height of the prism? _____

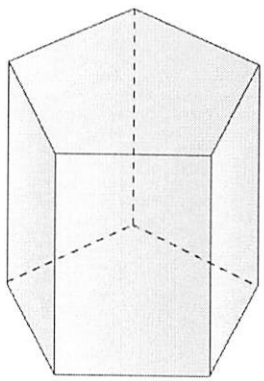




Not to scale.

Got It?

Name the figure shown.



Got It?

How is the number of lateral faces of a prism related to the shape of a base of the prism?

Example

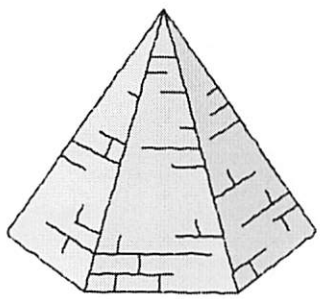
a. How many bases does the pyramid have? _____

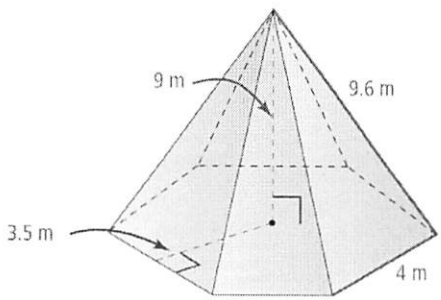
b. What shape are the bases? _____

c. Name the pyramid. _____

d. How many lateral faces does the pyramid have? _____

e. What is the height of the pyramid? _____





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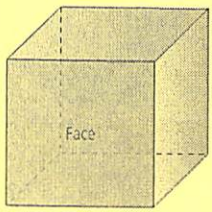
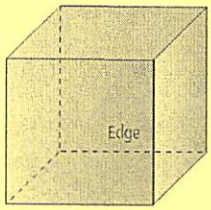
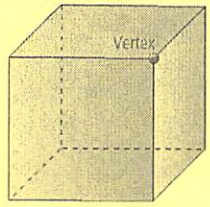
A **face of a three-dimensional figure** is a flat surface shaped like a polygon.



An **edge of a three-dimensional figure** is a segment formed by the intersection of two faces.

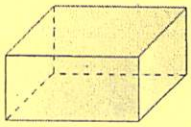


A **vertex of a three-dimensional figure** is a point where three or more edges meet.



Example

Decide whether each statement is *true* or *false*.



True False

a. The figure is a three-dimensional figure. T

b. The figure has three faces. F

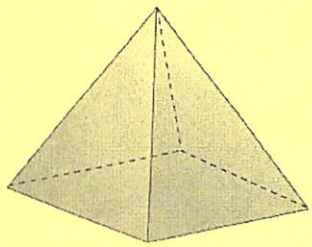
c. The faces are triangles. F

d. The figure has 12 edges. T

e. The figure has six vertices. F

Got It?

How many faces, edges, and vertices does the three-dimensional figure have?

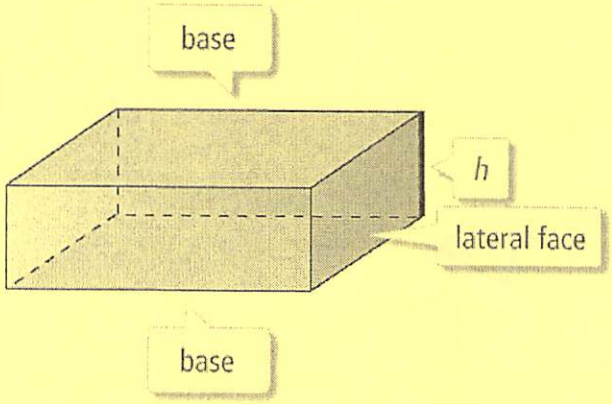


4 faces

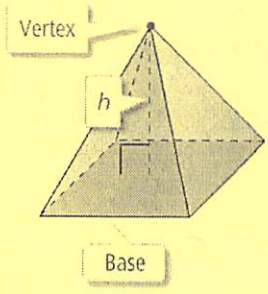
8 edges

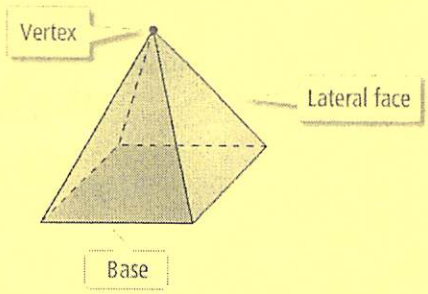
5 vertices

A **prism** is a three-dimensional figure with two parallel polygonal faces that are the same size and shape.



A **pyramid** is a three-dimensional figure with a base that is a polygon and triangular faces that meet at a vertex.





Example

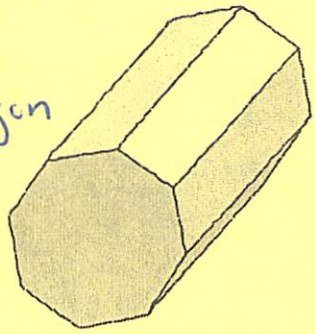
a. How many bases does the prism have? 2

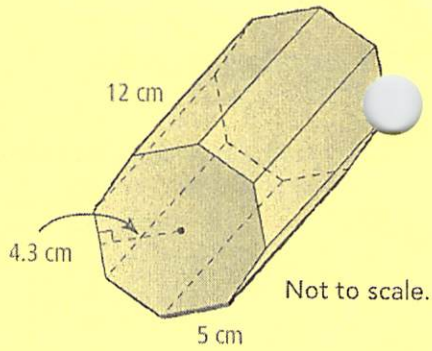
b. What shape does a base of the prism have? Octagon

c. Name the prism. Octagonal Prism

d. How many lateral faces does the prism have? 8

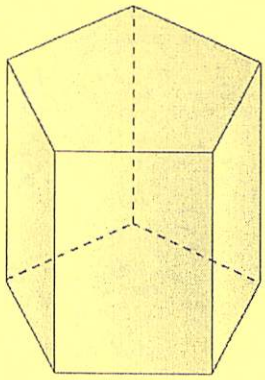
e. What is the height of the prism? 12 cm





Got It?

Name the figure shown.



Pentagonal Prism

Got It?

How is the number of lateral faces of a prism related to the shape of a base of the prism?

Number of Lateral faces = Edges of the base

Example

a. How many bases does the pyramid have? 1

b. What shape are the bases? Hexagon

c. Name the pyramid. Hexagonal Pyramid

d. How many lateral faces does the pyramid have? 6

e. What is the height of the pyramid? 9 m