LESSON 11.1

The Geometry of Solids Day 2

Learning Targets:

a. I can identify parts of geometric solids
b. I can classify geometric solids

Warm-up

Use Figure A to answer the questions below

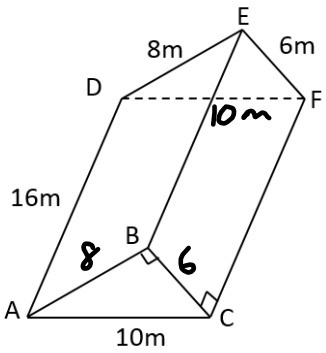


Figure A

1) Name the Solid Triangular Prism

2) Name the Bases Triangles

3) Name the Lateral Faces Rectangles

4) How many Vertices are there? 6

5) How many Edges are there? 9

6) Find the area of each of the bases

$A = \frac{1}{2} \cdot 6 \cdot 8$

Base 1 Area = $24\ m^2$

Base 2 Area = $24 m^2$

*We call the solid shown in Figure A a **right prism**.*

A right prism is a prism whose lateral faces are rectangles. Its lateral edges are perpendicular to its bases.

*Similarly, a cylinder is a **right cylinder** if the axis - the segment connecting the centers of the bases- is perpendicular to its bases.*

The **Height** of a **Right Prism or Right Cylinder** is the perpendicular distance between the Bases.

How far apart are the bases?

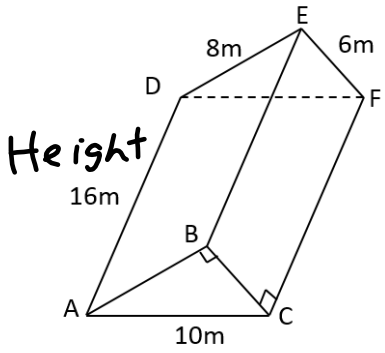


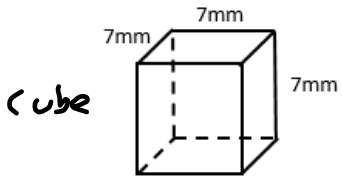
Figure A

What is the height of the prism in Figure A above?

16m

Determine the heights of each of the following solids.

Use the shaded sides of the prism below as your Bases



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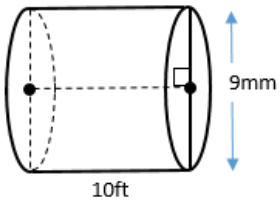
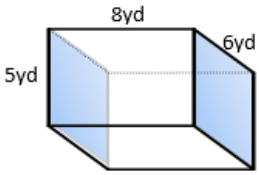




Height = 7mm

Height = 10ft

Height = 8yd

The pyramid in Figure B and the cone in Figure C have two types of heights that can be identified: A ***height*** *and a* ***slant height.***

The ***Height*** *of each of these solids is the perpendicular distance from its vertex (or apex) to the center of its Base.*

The ***Slant Height of the Pyramid*** *is the height of each triangular lateral face. The* ***Slant Height of the Cone*** *is the distance along cone's lateral surface from the edge of the circular base to its vertex (or apex)*

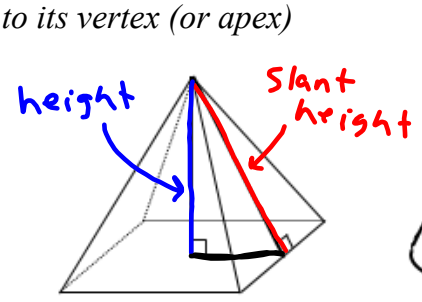


Figure B

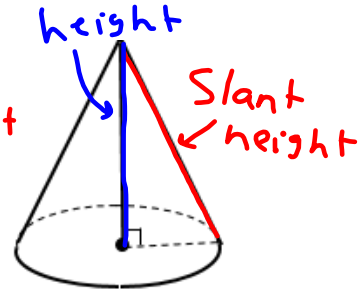
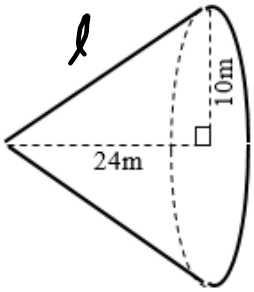


Figure C

Label the "height" and "slant height" of each of the Figures above.

1) Determine the slant height of the cone.



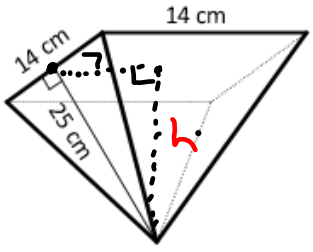
l = slant height

$24^2 + 10^2 = l^2$

$676 = l^2$

Slant Height = 26 m

2) Determine the height of the square pyramid using the given information.

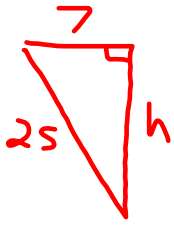


$h^2 + 7^2 = 25^2$

$h^2 + 49 = 625$

$h^2 = 576$

$h = 24$



Height = 24

3) The base of a cone has a diameter of 10 ft. Determine the height of the cone if the slant height is 13 ft. Draw and label a picture first.

Height = _____

Assignment:

11.1 and 1.8 Geometry of Solids Homework Day 2