

Volumes of Prisms and Pyramids

Prism: a solid having bases or ends that are parallel, congruent polygons and sides that are parallelograms.

A solid object with two identical ends and flat sides:

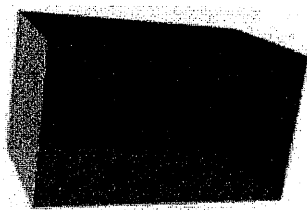
- The sides are parallelograms (4-sided shape with opposite sides parallel)
- The cross section is the same all along its length

Cross section is the shape made when a solid is cut through parallel to the base.

The shape of the ends give the prism a name, such as "triangular prism"

These are all Prisms:

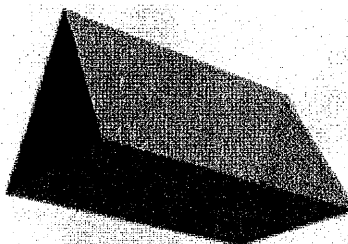
Square Prism:



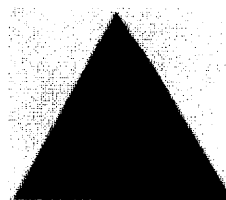
Cross-Section:



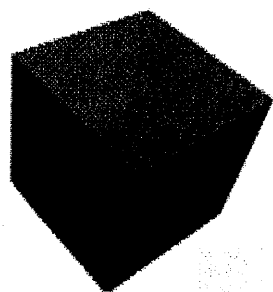
Triangular Prism:



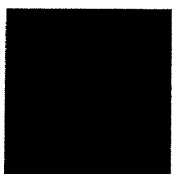
Cross-Section:



Cube:



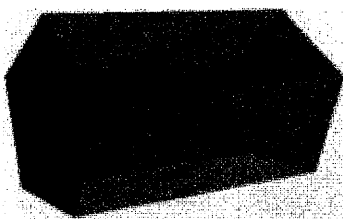
Cross-Section:



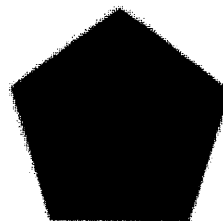
(yes, a cube is a prism, because it is a square all along its length)

(Also see Rectangular Prisms)

Pentagonal Prism:

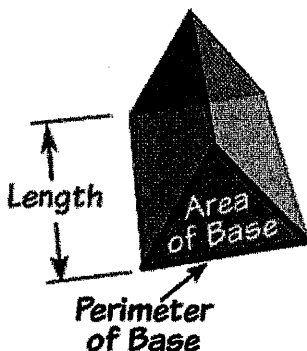


Cross-Section:

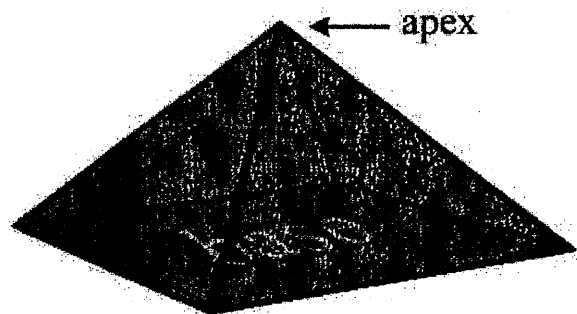


The Volume of a prism is the area of one end times the length of the prism.

$$\text{Volume} = \text{Base Area} \times \text{Length}$$

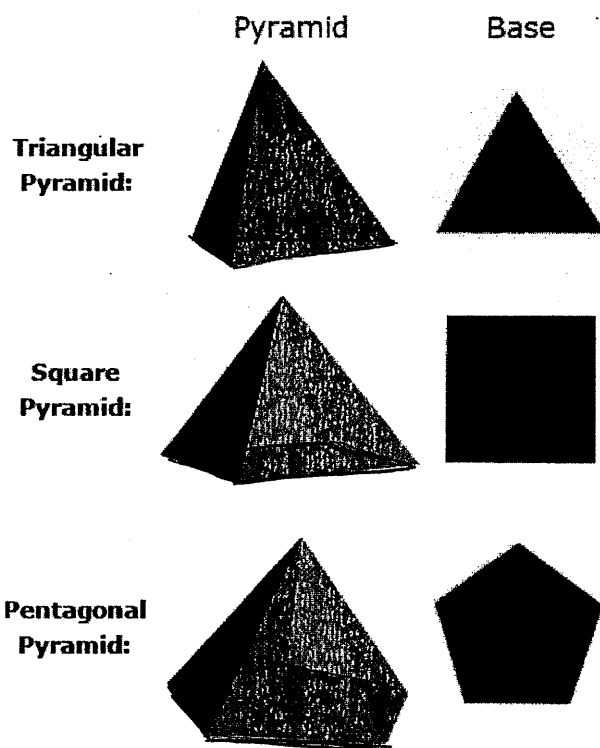


Pyramids: a shape or structure with a polygon for its base and three or more triangles for its sides which meet to form the top.



A solid object where:

- The base is a polygon (a straight-sided flat shape)
- The sides are triangles which meet at the top (the apex).



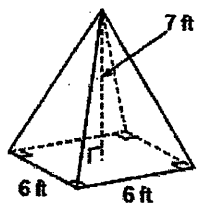
The Volume of a Pyramid

- $\frac{1}{3} \times [\text{Base Area}] \times \text{Height}$

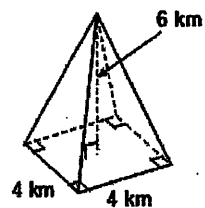
12-4 and 12-5 Volume of Prisms and Pyramids

Find the volume of each figure. Round your answers to the nearest hundredth, if necessary.

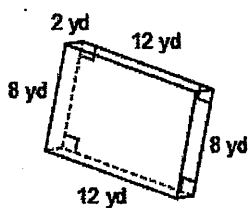
1)



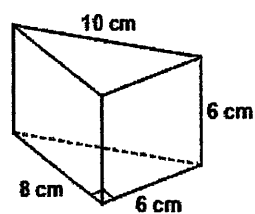
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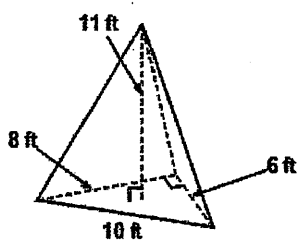
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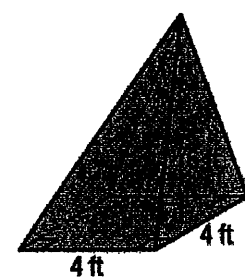
4)



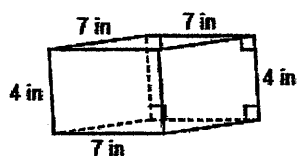
5)



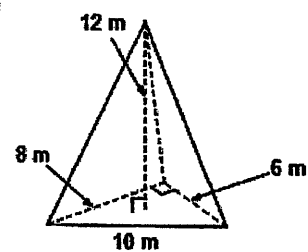
6)



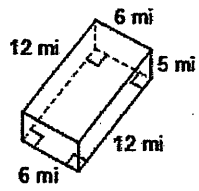
7)



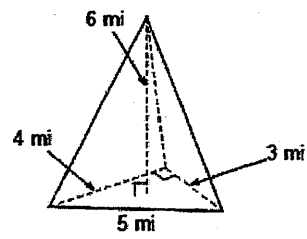
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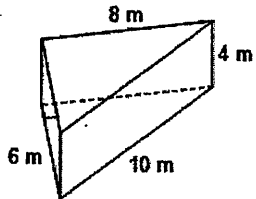
9)



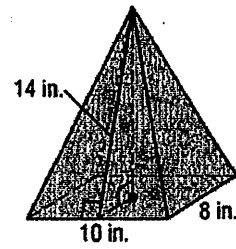
10)



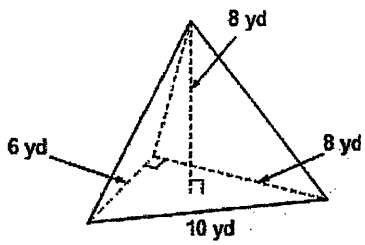
11)



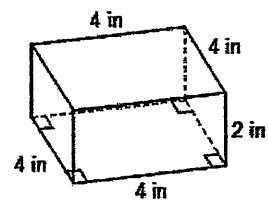
12)



13)



14)



15)

