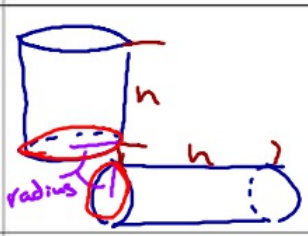
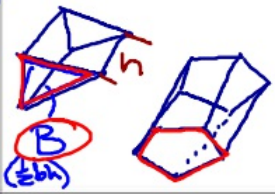
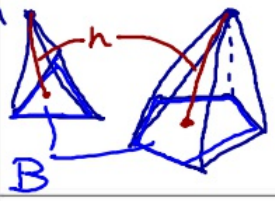
Day 2: Intro to Volume of 3D Solids Date _____

The point where two or more straight lines meet, a corner, of a shape is called a Vertex (Vertice), or in plural form Vertices.

The vertex furthest from the base of an object is the height (altitude)

3D Objects to Know	Properties of the Object/How to Identify the Object	Picture
Cylinder	– Tube, Barrel, – Circle at both ends. – has a length or height. – Base (area)	
Cone 	– has one circle – Vertex opposite the circle – Look Like a triangle – Not Icecream Cone; Waffle or Sugar cone	
Prism	– Base, triangle, rectangle, any polygon – opposite sides are the same – Length	
Pyramid	– Base, triangle, rectangle, any polygon – has a vertex point. – height.	
Sphere	– a ball – radius	

Volume

Volume is measured in cubic units. The volume of a figure is the water, nitrogen, etc required to fill it completely; the total amount of space that an object takes up.

Example:

Be careful with your measurements All of the units used when calculating the volume of a 3D object must be ft^3, m^3, in^3, cm^2, units^3.

Example:

Non-Example:

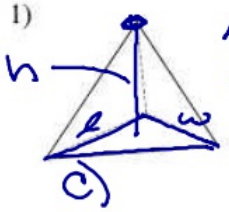
3D Object	Volume Equals	Fraction	Base	Height	*Volume Formula*
Cylinder	V=	—	πr^2	h	$V = B \cdot h$ $V = (\pi r^2)h$
Cone Comes to a Point	V=	$\frac{1}{3}$	πr^2	h	$V = \frac{1}{3} B h$ $V = \frac{1}{3}(\pi r^2)h$
Prism	V=	—	$= l \cdot w$ $= \frac{1}{2} b \cdot h$ $= \frac{1}{2} b \cdot a \cdot (\#s)$ } B	h	$V = Bh$
Pyramid Comes to a point.	V=	$\frac{1}{3}$	$= l \cdot w$ $= \frac{1}{2} b \cdot h$ $= \frac{1}{2} b \cdot a \cdot (\#s)$ } B	h	$V = \frac{1}{3} Bh$
Sphere	V=	$\frac{4}{3}$	—	—	$V = \frac{4}{3} \pi r^3$

For each figure:

A) Name each figure.

B) State the volume formula.

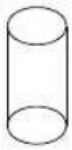
C) Draw and label the radius, height, length, width, and apothem as needed for each figure.

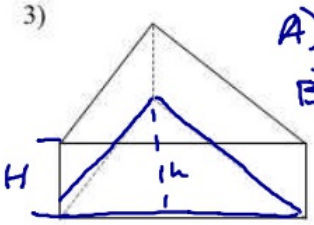
1) 

A) Triangular Pyramid

B) $V = \frac{1}{3}Bh$

$V = \frac{1}{3}(\frac{1}{2}\ell \cdot w)h$

2) 

3) 

A) Triangular Prism

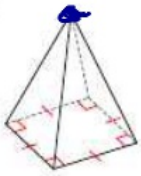
B) $V = Bh$

$= (\frac{1}{2}\ell w)H$

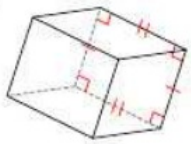
4) 

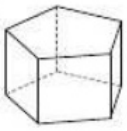
B) $V = \frac{1}{3}(B)h$

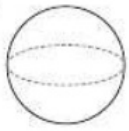
$V = \frac{1}{3}(\pi r^2)h$

5) 

B) $V = \frac{1}{3}$

6) 

7) 

8) 

9) 

10) 

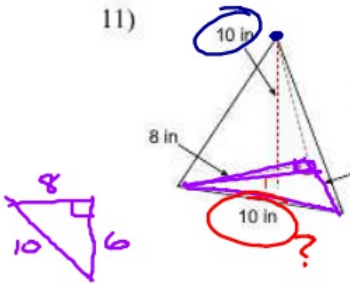
For each figure:

A) Name each figure.

B) State the volume formula.

C) Find the volume of the figure. Round to the nearest thenth, if necessary.

11)



A) Triangular Pyramid

B) $V = \frac{1}{3}Bh$

$V = \frac{1}{3}(\frac{1}{2} \cdot 6 \cdot 8)(10)$

$= 80. \text{ m}^3$

8, 10, 6

12)

A) Rectangular Prism

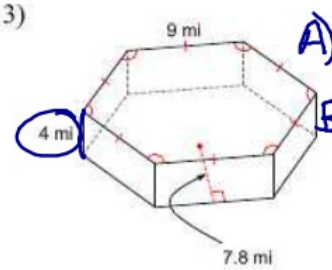
B) $V = (B)h$

$= (\ell \cdot w)h$

C) $V = 3 \cdot 4 \cdot 5$

$= 60 \text{ km}^3$

13)



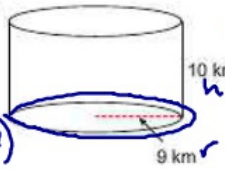
A) hexagonal Prism

B) $V = Bh$

$= (\frac{1}{2} \cdot 9 \cdot 7.8 \cdot 6)(4)$

$= 842.4 \text{ m}^2$

14)



A) Cylinder

B) $V = Bh$

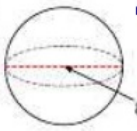
$V = (\pi r^2)h$

C) $= \pi(9)^2 \cdot 10$

$= 10 \cdot \pi \cdot 9.9$

$= 9 \cdot 10 \cdot 9 \cdot \pi$

15)



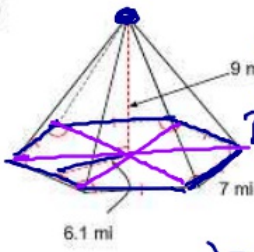
A) Sphere

B) $V = \frac{4}{3}\pi r^3$

C) $= \frac{4}{3}\pi(4)^3$

$= 267.9 \text{ m}^3$

16)



A) = hexagon Pyramid

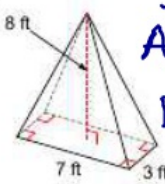
B) $= V = \frac{1}{3}(B) \cdot h$

$V = \frac{1}{3}(\frac{1}{2} \cdot b \cdot a \cdot \#s)h$

C) $V = \frac{1}{3}(\frac{1}{2} \cdot 7 \cdot 6.1 \cdot 6)9$

$= 384 \text{ m}^3$

17)



A) Rect. Pyramid

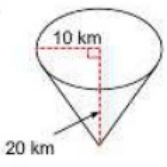
B) $V = \frac{1}{3}B \cdot h$

$V = \frac{1}{3}(\ell \cdot w)h$

C) $V = \frac{1}{3}(7 \cdot 3)\ 8$

$= 56 \text{ ft}^3$

18)



A) Cone

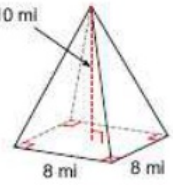
B) $V = \frac{1}{3}(B)h$

$V = \frac{1}{3}(\pi r^2)h$

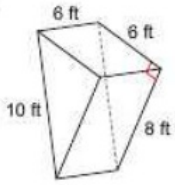
C) $V = \frac{1}{3}(\pi 10^2)20$

$V = 2093.3 \text{ Km}^3$

19)



20)



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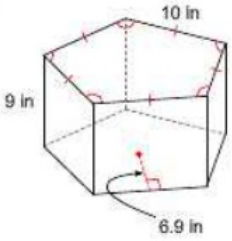

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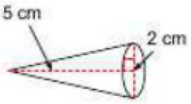

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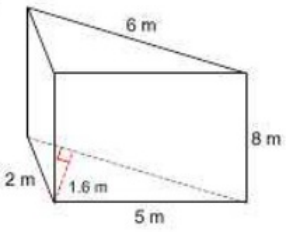
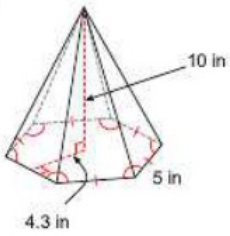
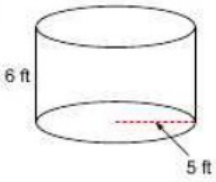


24)



25)



26)