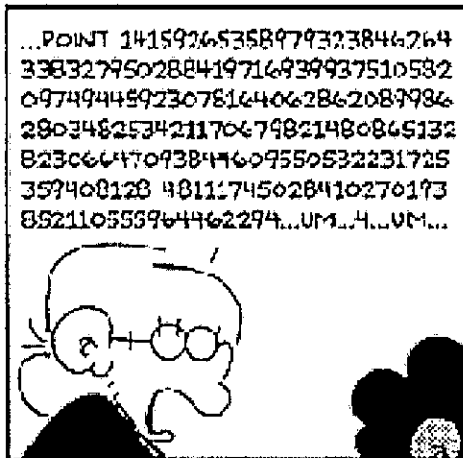
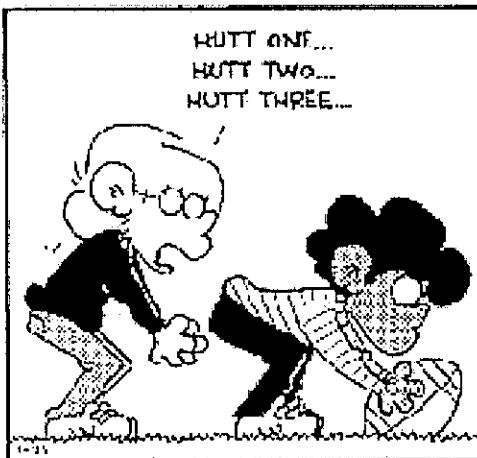


Name: KEY!

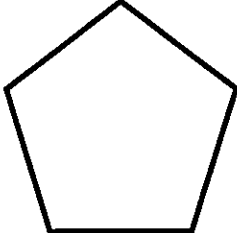
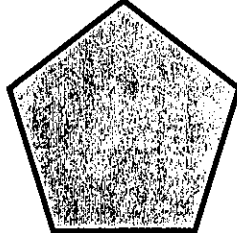
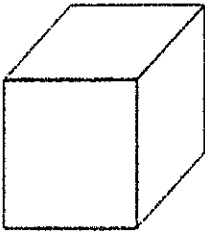
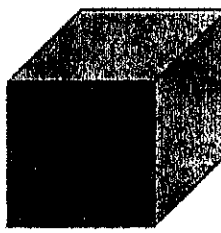
Hour: _____

Unit H: Viewing 3D Solids

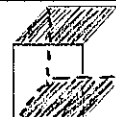
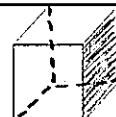
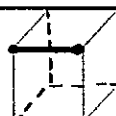
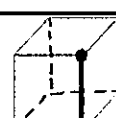
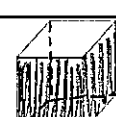
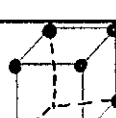
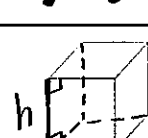


Lesson 9-3 & 9-4: Prisms, Cylinders, Pyramids, & Cones

Vocabulary

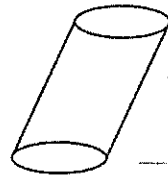
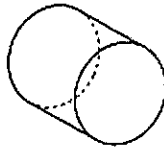
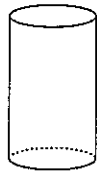
Polygon	Polygonal Region
 <p>outside boundary of a 2D figure</p>	 <p>interior & exterior of a 2D figure</p>
Surface	Solid
 <p>outside boundary of a 3D figure</p>	 <p>interior & exterior of a 3D figure</p>

Parts of 3D Figures:

Base	give the 3D shape its name	
Face	flat surfaces of a 3D figure	
Edge	lines between faces	
Lateral Edge	lines connecting non-base faces	
Lateral Surface	non-base faces	
Vertex/Vertices	corner points	
Height	distance from base to base	

Cylinder: 3D solid whose bases are circles

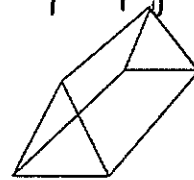
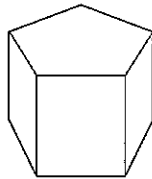
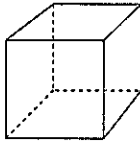
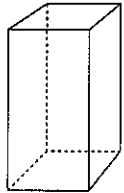
Examples



← oblique cylinder

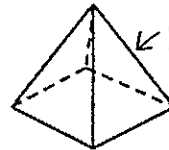
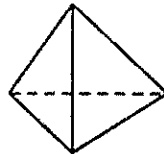
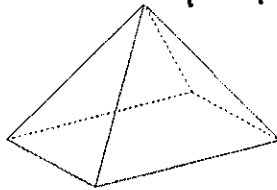
Prism: 3D solid whose bases are polygons

Examples



Pyramid: base is a polygon & comes to a point

Examples

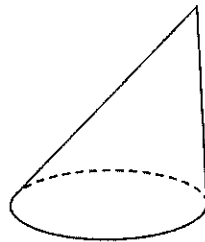
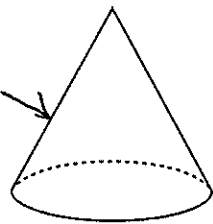


← slant height

Cone: base is a circle & comes to a point

Examples

slant height

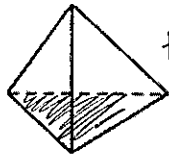


← oblique cone

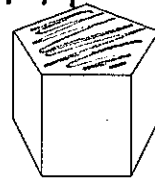
Naming Prisms & Pyramids:

1. base shape & 2. prism/pyramid

Example



triangular pyramid



pentagonal prism

Right vs. Oblique

Right: bases are \perp

Oblique: slanted (bases are not \perp)

Rotating Figures on their "axis of symmetry"...

Imagine spinning a 2D figure really, really fast - this is called rotating a figure on its axis of symmetry.

Practice

For each of the 2D figures, name the 3D figure created by rotating it on its axis of symmetry.

1. Circle ^{spinning a coin}

sphere

2. Triangle

cone

3. Square

cylinder

Name the 2D figure that is necessary to rotate on its axis of symmetry to get the given 3D figure.

4. Truncated cone

trapezoid

5. Cylinder

rectangle

6. Sphere

circle

Use the cone to below to the right.

7. Find the ^{height} altitude of the cone.

$$a^2 + b^2 = c^2$$

$$h^2 + 23^2 = 28^2$$

$$h^2 + 529 = 784$$

$$\begin{array}{r} -529 \\ \hline \end{array}$$

$$\sqrt{h^2} = \sqrt{255}$$

$$h = 15.97$$

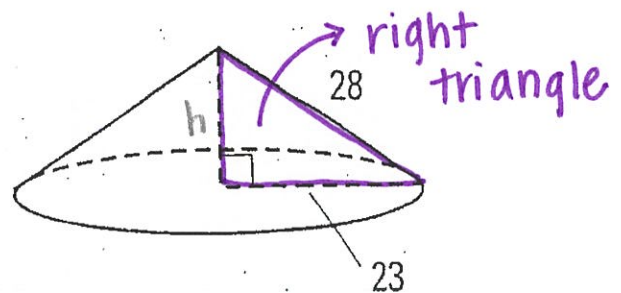
8. Find the area of the cone's base.

circle

$$A = \pi \cdot r^2$$

$$= \pi \cdot 23^2$$

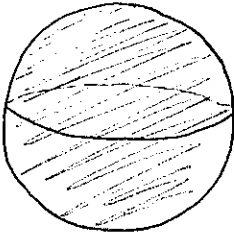
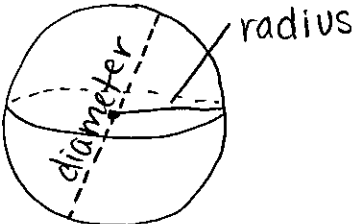
$$= 1661.9 \text{ units}^2$$



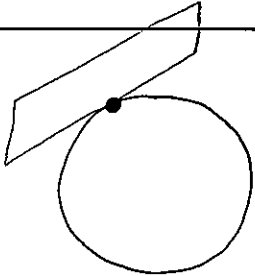
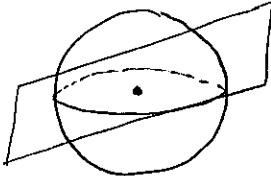
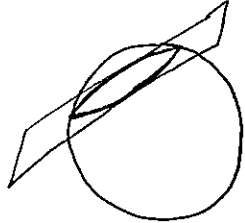
Lesson 9-5: Spheres & Sections

Vocabulary

Sphere: 3D counterpart to a circle

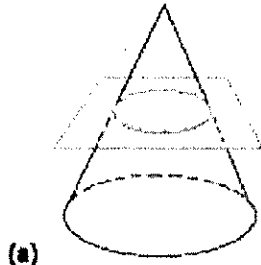
Solid Sphere	Sphere
	

Parts of a ~~Circle~~ Sphere:

Point	<p>plane meets surface of sphere in one spot</p>	
Great Circle	<p>circle that contains the center of the sphere</p>	
Small Circle	<p>circle that doesn't contain the center</p>	

Plane Section: the intersection of a plane w/ a 3D
Figure

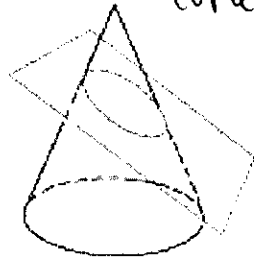
Cones:



(a)

Circle

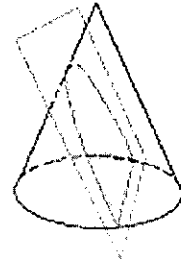
plane section
is // to base



(b)

Ellipse

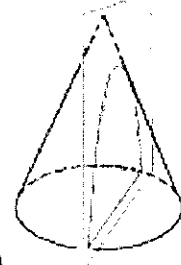
plane section
is NOT // to
base



(c)

Parabola

plane section
hits base at
non-right
angle

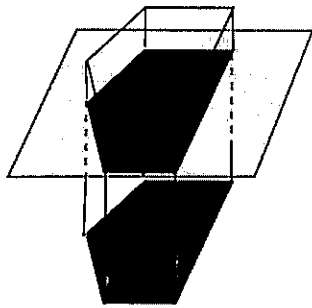


(d)

Hyperbola

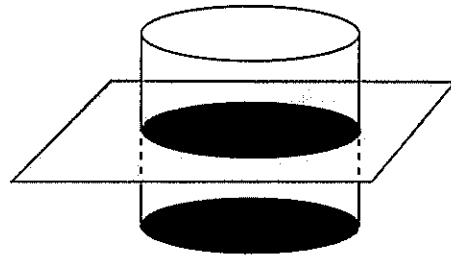
plane section
hits base at
right angle

Prisms & Cylinders:



(e)

plane section
is // to base...
so its the same
as the base



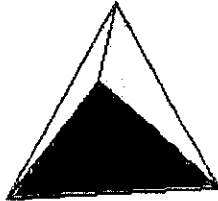
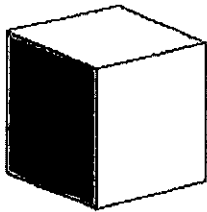
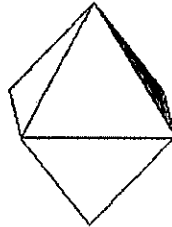

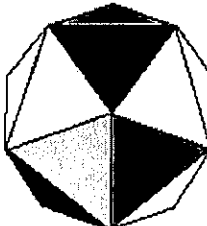
(f)

plane section is //
to base... so its the
same as the base

Lesson 9-8: Making Surfaces

Vocabulary

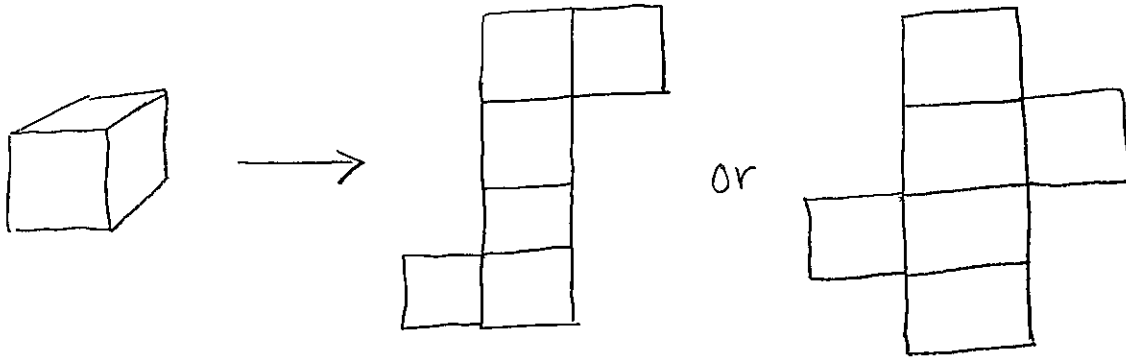
Polyhedron: a 3D surface made of regular polygons w/ no holes (plural: polyhedra)

Name	# of Sides	Picture
<u>Tetra</u> hedron	4	
<u>Hexa</u> hedron (cube)	6	
<u>Octa</u> hedron	8	
<u>Dodeca</u> hedron	12	
<u>Iso</u> cahedron	20	

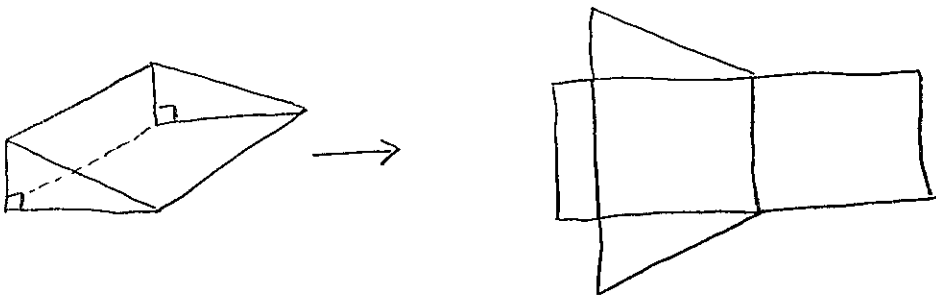
Net: a 2D figure that can be folded into a 3D figure

Practice

1. Draw a net for a cube.



2. Draw a net for a right triangular prism.



3. Draw a net for a cylinder with height h and diameter r .

