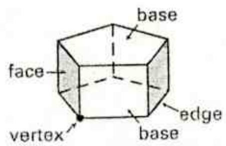
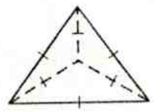
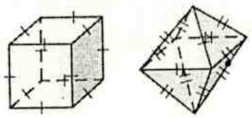
Polyhedron, face, edge, vertex, base



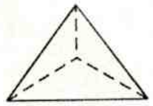
Regular, convex polyhedron



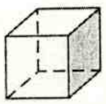
Platonic solids



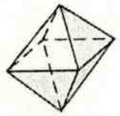
Tetrahedron



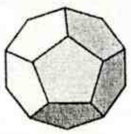
Cube



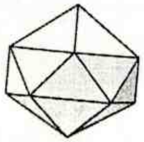
Octahedron



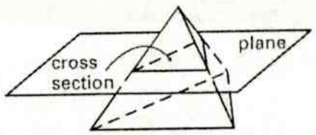
Dodecahedron



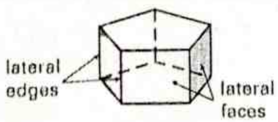
Icosahedron



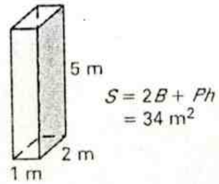
Cross section



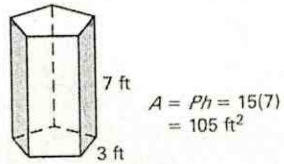
Prism, lateral faces, lateral edges



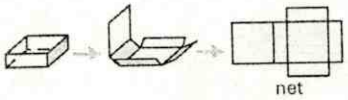
Surface area



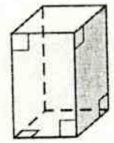
Lateral area



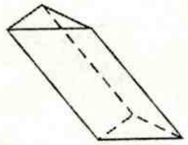
Net



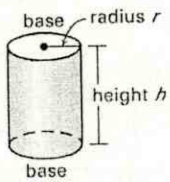
Right prism



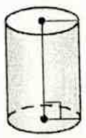
Oblique prism



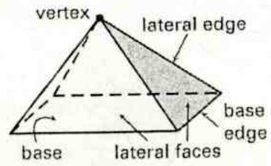
Cylinder



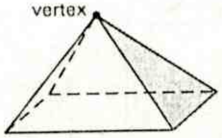
Right cylinder



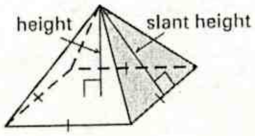
Pyramid



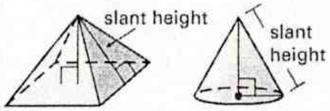
Vertex of a pyramid



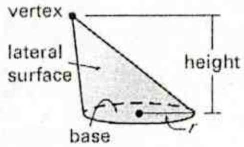
Regular pyramid



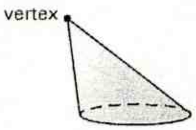
Slant height



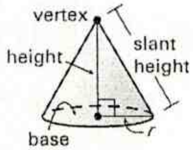
Cone



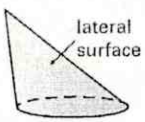
Vertex of a cone



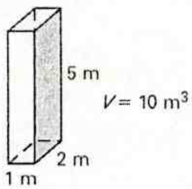
Right cone



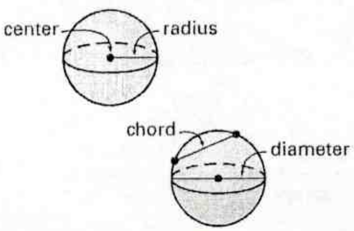
Lateral surface



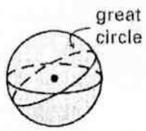
Volume



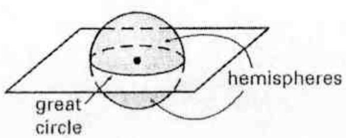
Sphere, center, radius, chord, diameter



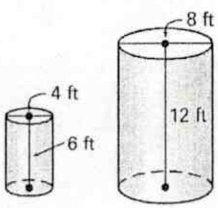
Great circle



Hemisphere



Similar solids



Surface Area Prism

$S = 2B + Ph$

Surface Area Pyramid

$S = B + \frac{P\ell}{2}$

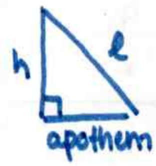
B = area of base

P = perimeter of base

h = height

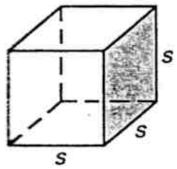
ℓ = slant height

Pyramid



cone

Surface Area

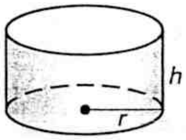


cube

$S = 6s^2$

sphere

$S = 4\pi r^2$



cylinder

lateral area → $2\pi rh$, area of bases → $2\pi r^2$

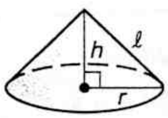
$S = 2\pi rh + 2\pi r^2$

or

$S = 2\pi r(h + r)$

$S = 2B + Ch$

$= 2\pi r^2 + 2\pi rh$



cone

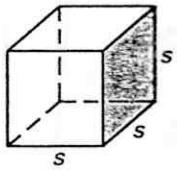
lateral area → $\pi r\ell$, area of base → πr^2

$S = \pi r\ell + \pi r^2$

or

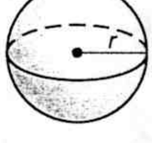
$S = \pi r(\ell + r)$

Volume



cube

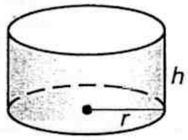
$V = s^3$



sphere

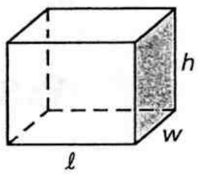
$V = \frac{4}{3}\pi r^3$

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



cylinder

$V = Bh$ or $V = \pi r^2 h$

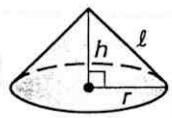


prism

$V = Bh$ or $V = \ell wh$

Volume Prism

$V = Bh$

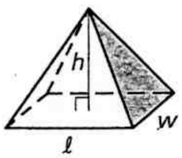


cone

$V = \frac{1}{3}Bh$ or $V = \frac{1}{3}\pi r^2 h$

Volume Cone

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



pyramid

$V = \frac{1}{3}Bh$ or $V = \frac{1}{3}\ell wh$

Volume Pyramid

$V = \frac{Bh}{3}$

Ratio of . . .

	Sides/Perimeter	Areas	Volumes
	$\frac{a}{b}$	$\frac{a^2}{b^2}$	$\frac{a^3}{b^3}$
	1	1	1
	2	4	8
	3	9	27
	4	16	64
	5	25	125
	x	x^2	x^3

Ratio sides/Perm = Side/Perm

$$\frac{a}{b} = \frac{P(I)}{P(II)}$$

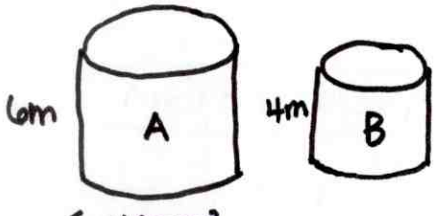
Ratio Areas = Areas

$$\frac{a^2}{b^2} = \frac{A(I)}{A(II)}$$

Ratio Volumes = Volumes

$$\frac{a^3}{b^3} = \frac{V(I)}{V(II)}$$

Figure A is similar to figure B. Find the S and V of figure B.



$S = 40\pi m^2$

$V = 64\pi m^3$

$$\frac{6}{4} = \boxed{\frac{3}{2} = \frac{a}{b}}$$

Ratio Areas

$$\frac{a^2}{b^2} = \frac{9}{4}$$

Ratio Volumes

$$\frac{a^3}{b^3} = \frac{27}{8}$$

Ratio Areas = Areas

$$\frac{9}{4} = \frac{40\pi}{x}$$

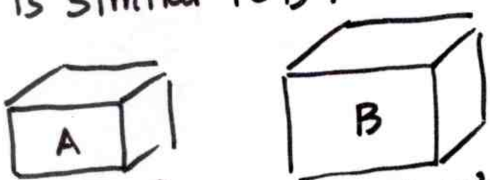
$$\boxed{S(B) = 17.8\pi m^2}$$

Ratio Volumes = Volumes

$$\frac{27}{8} = \frac{64\pi}{x}$$

$$\boxed{V(B) = 19\pi m^3}$$

A is similar to B.



$S = 26\ cm^2$ $\quad$ $S = 104\ cm^2$

Find the ratio of the volumes.

$$\frac{26}{104} = \boxed{\frac{1}{4} = \frac{a^2}{b^2}} \xrightarrow{\sqrt{x}} \frac{a}{b} = \frac{1}{2} \xrightarrow{x^3} \boxed{\frac{a^3}{b^3} = \frac{1}{8}}$$