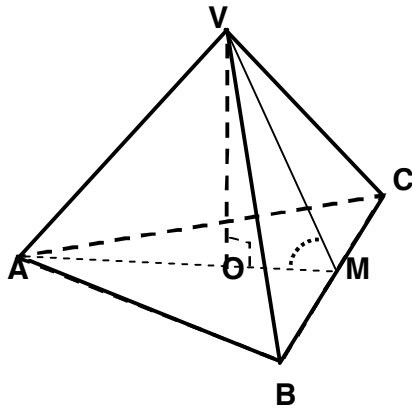


## H. TETRAEDRUL REGULAT



- este piramida cu toate fetele triunghiuri echilaterale
- are toate muchiile egale
- muchia laterala = muchia bazei =  $l$

$$OM = \frac{1}{3} \cdot \frac{l\sqrt{3}}{2} = \frac{l\sqrt{3}}{6}$$

- apotema bazei -  $OM = \frac{l\sqrt{3}}{6}$

$$VM = \frac{l\sqrt{3}}{2}$$

- inaltimea  $\Rightarrow$  din  $\Delta VOM$   $VO^2 = VM^2 - OM^2 = \left(\frac{l\sqrt{3}}{2}\right)^2 - \left(\frac{l\sqrt{3}}{6}\right)^2 = \frac{3l^2}{4} - \frac{3l^2}{36} = \frac{24l^2}{36} - \frac{3l^2}{36} = \frac{21l^2}{36} \Rightarrow VO = \frac{l\sqrt{6}}{3}$

$$\frac{l^2\sqrt{3}}{4}$$

$$\frac{l^2\sqrt{3}}{4}$$

Aria laterala =  $3 \cdot \frac{l^2\sqrt{3}}{4}$  ; Aria totala =  $4 \cdot \frac{l^2\sqrt{3}}{4} = l^2\sqrt{3}$

Aria bazei  $\cdot$  Inaltimea  $= \frac{l^2\sqrt{3}}{4} \cdot \frac{l\sqrt{6}}{3} = \frac{l^3\sqrt{2}}{12}$

Volumul =  $\frac{l^3\sqrt{2}}{12}$

Unghiul dintre oricare 2 fete va fi acelasi , oricare ar fi lungimea muchiei

$\sin(\angle VMO) = \frac{VO}{VM} = \frac{l\sqrt{6}}{2l\sqrt{3}} = \frac{\sqrt{2}}{2}$  ;  $\cos(\angle VMO) = \frac{OM}{VM} = \frac{l\sqrt{3}}{2l\sqrt{3}} = \frac{1}{2}$

Pentru a rezolva probleme mai dificile cu tetraedru, se scriu toate elementele tetraedrului (inclusiv ariile si volumul) in functie de muchia lui .