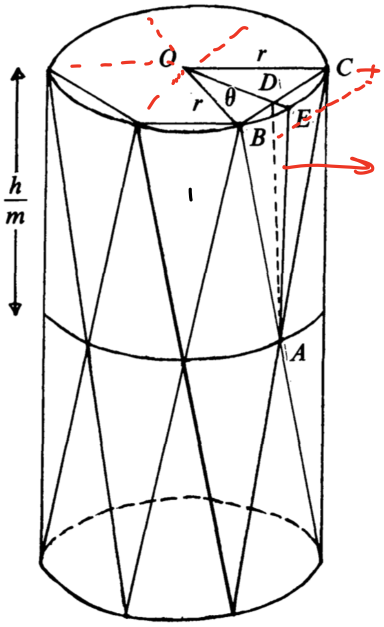
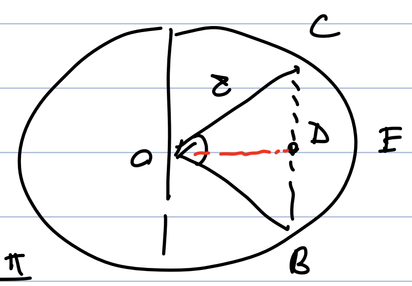
h altezza $\qquad$ m fette



$$\theta = \frac{2\pi}{n}$$



BC

$$\overline{BC} = 2\,\overline{CD} = 2\, r \sin\frac{2\pi}{2n}$$

$$\overline{BC} = 2r \sin\left(\frac{\pi}{n}\right)$$

Area (ABC) ??

$$\overline{DE} = \overline{OE} - \overline{OD} = r - r\cos\left(\frac{2\pi}{2n}\right) = r - r\cos\left(\frac{\pi}{n}\right)$$

$$\overline{DE} = r\left[1-\cos\left(\frac{\pi}{n}\right)\right]$$

$$\overline{AD}^2 = \overline{AE}^2 + \overline{DE}^2 = \left(\frac{h}{m}\right)^2 + r^2\left[1-\cos\left(\frac{\pi}{n}\right)\right]^2$$

$$A(A\overset{\triangle}{B}C) = \frac{1}{2}\,\overline{BC}\cdot\overline{AD} = \frac{1}{2}\, 2r\sin\left(\frac{\pi}{n}\right)\sqrt{\left(\frac{h}{m}\right)^2 + r^2\left(1-\cos\left(\frac{\pi}{n}\right)\right)^2}$$

$$A(S_m) = 2rn\sin\left(\frac{\pi}{n}\right)\sqrt{\frac{h^2}{m^2} + r^2\left(1-\cos\left(\frac{\pi}{n}\right)\right)^2}$$

$$A(m,n) = 2mnr\sin\left(\frac{\pi}{n}\right)\sqrt{\frac{h^2}{m^2} + r^2\left(1-\cos\frac{\pi}{n}\right)^2}$$

$$= 2\pi r\,\frac{n}{\pi}\sin\left(\frac{\pi}{n}\right)\sqrt{h^2 + r^2m^2\left(1-\cos\frac{\pi}{n}\right)^2} = A(m,n)$$

$$A = \lim_{n,m\to\infty} A(m,n) = N.E.$$

$$\lim_{m\to+\infty}\left[\lim_{n\to+\infty} A(m,n)\right] = \lim_{m\to+\infty} 2\pi r\left[\lim_{n\to+\infty}\underbrace{\frac{n}{\pi}\sin\left(\frac{\pi}{n}\right)}_{\to 1}\sqrt{h^2+r^2m^2\underbrace{\left(1-\cos\frac{\pi}{n}\right)^2}_{\to 0}}\right]$$

$$= \lim_{m\to+\infty} 2\pi r\sqrt{h^2} = \lim_{m\to+\infty} 2\pi r h$$

$$= 2\pi r h$$

$$\lim_{n\to+\infty}\left[\lim_{m\to+\infty} 2\pi z \underset{0}{\underset{\vee}{\frac{n}{\pi}}} \underset{0}{\underset{\vee}{\sin\left(\frac{\pi}{n}\right)}} \sqrt{h^2 + \underset{+\infty}{\underset{\downarrow}{z^2 m^2}}\left(1-\cos\frac{\pi}{n}\right)^2}\right]$$

$\left(1-\cos\frac{\pi}{n}\right) \neq 0$

$+\infty$

$a = (a_1, a_2, a_3)$

$b = (b_1, b_2, b_3)$ $\quad$ $\mathrm{span}\{a, b\}$ $\quad$ $a \not\parallel b$

$a \times b = a \wedge b \neq 0$ $\quad$ $a \wedge b$ è ortogonale ne ad e a ed a b

$$\lim_{n,m\to+\infty} A_{m,n} \qquad m = cn^2$$

$$\lim_{n\to+\infty} A_{cn^2,n} = \lim_{n\to+\infty} 2\pi z \underset{1}{\underset{\downarrow}{\frac{n}{\pi}\sin\frac{\pi}{n}}} \sqrt{h^2 + cn^4 z^2\left(1-\cos\frac{\pi}{n}\right)^2}$$

$$\downarrow$$

$$2\pi z\sqrt{h^2 + \frac{cz^2\pi^4}{4}}$$

$x\to 0$

$\frac{1-\cos(x)}{x^2} \to \frac{1}{2}$

$1-\cos\frac{\pi}{n} \approx \frac{1}{2}\frac{\pi^2}{n^2}$ $\quad$ $n\to+\infty$

$\vee$

$\left(1-\cos\frac{\pi}{n}\right)^2 = \frac{\pi^4}{4n^4}$ $\quad$ $2\pi z h$

$$\sqrt{h^2 + cn^4 z^2\left(1-\cos\frac{\pi}{n}\right)^2} \approx \sqrt{h^2 + c\cancel{n^4} z^2 \frac{\pi^4}{4\cancel{n^4}}}$$

$m = n^2$ $\quad$ $m = O(n^\alpha)$ $\quad$ $\alpha < 2$

S SUPERFICIE $\quad$ S_i POLIEDRI APPROSSIMANO S

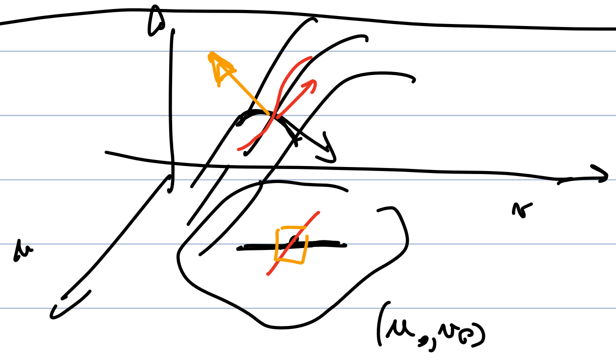
$$A(S) = \inf\left[\lim_{i\to+\infty} \inf A(S_i)\right]$$

$A(S)$

$$\boxed{\ell(\gamma) = \int_a^b \|\gamma'(t)\|\,dt}$$

$\phi(u,v) = (\phi_1(u,v), \phi_2(u,v), \phi_3(u,v))$ $\quad$ $u,v \in T$

$$\boxed{A = \int_{\phi} 1 \, d\sigma = \int_{\phi} 1 \, dS \overset{dA}{=} \iint_{T} \left\| \frac{\partial \phi}{\partial u} \wedge \frac{\partial \phi}{\partial v} \right\| du\,dv}$$



$$\frac{\partial \phi}{\partial u} \wedge \frac{\partial \phi}{\partial v}$$