FÓRMULAS PARA EL CÁLCULO DE CANALES

✓ Ecuación de Chezy:

$$v = C\sqrt{RI}$$

Formulas de: Bazin: Manning Ganguillet-Kutter

$$C = \frac{87}{1+\frac{\gamma}{\sqrt{R}}} \qquad C = \frac{R^{1/6}}{n} \qquad v = \frac{1}{n}R^{2/3}\sqrt{I} \qquad C = \frac{23+\frac{1}{n}+\frac{0{,}00155}{I}}{1+\left(23+\frac{0{,}00155}{I}\right)\frac{n}{\sqrt{R}}}$$

$$S = \frac{V}{Q} = \frac{Q\cdot n}{R^{2/3}I^{1/2}}$$

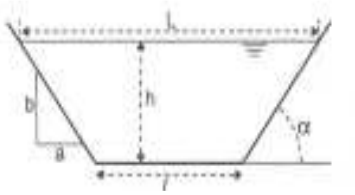
(Ver valores de γ y n en prontuario)

✓ Sección trapecial

$$L = l + 2\cdot h\cdot \cot\alpha$$

$$S = \frac{L+l}{2}h = \frac{2l+2\cdot h\cdot\cot\alpha}{2}h = h(l+h\cdot\cot\alpha)$$

$$c = l + \frac{2h}{sen\,\alpha}$$

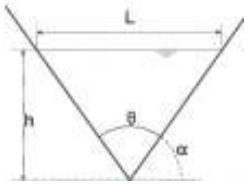


Óptima: (α = 60º)

$$S = \frac{2-\cos\alpha}{sen\,\alpha}h^2;\ h = \sqrt{\frac{sen\,\alpha\cdot S}{2-\cos\alpha}};\ c = 2h\frac{2-\cos\alpha}{sen\,\alpha};\ R = \frac{h}{2};\ l\frac{1-\cos\alpha}{sen\,\alpha}2h;\ L = \frac{2h}{sen\,\alpha}$$

✓ Sección triangular

$$L = 2h\tan\frac{\theta}{2};\ S = h^2\tan\frac{\theta}{2};\ c = \frac{2h}{\cos\frac{\theta}{2}};\ R = \frac{h}{2}sen\frac{\theta}{2}$$

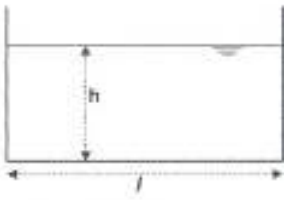


Óptima para θ = 90º

✓ Sección rectangular

$$c = l + 2h;\ R = \frac{l\cdot h}{l+2h}$$

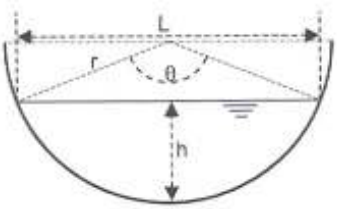
En la sección **óptima**, $l = 2h$



✓ Sección circular

$$L = 2r\cdot sen\frac{\theta}{2};\ S = \frac{1}{2}r^2(\theta - sen\,\theta)\ (*)$$

$$h = r - r\cos\frac{\theta}{2};\quad c = r\theta;\quad R = \frac{1}{2}r\left(1-\frac{sen\,\theta}{\theta}\right)\ (*)$$



(*) Ángulos en radianes