

## Resolución Ejercicio Flujo Uniforme

Datos disponibles:

$$Y = 0.5m$$

$$b = 10m$$

$$\varepsilon = 1.007 * 10^{-6}$$

$$s = 0.000035$$

Cálculos:

$$Rh = \frac{by}{b + 2y} = \frac{10 * 0.5}{10 + 2 * 0.5} = 0.4545$$

Asumo  $V = 0.1 \text{ m/s}$

$$Re = \frac{V * 4Rh}{\nu} = \frac{0.1 * 4 * 0.4545}{1.007 * 10^{-6}} = 1.8 * 10^5$$

$$\frac{1}{\sqrt{f}} = -2 \log \left[ \frac{\varepsilon / 4Rh}{3.71} + \frac{2.5}{Re * \sqrt{f}} \right] = 0.016$$

$$C = \sqrt{\frac{8 * g}{f}} = \sqrt{\frac{8 * 9.81}{0.016}} = 70.4$$

$$V = C \sqrt{Rh * S} = 70.4 \sqrt{0.4545 * 0.000035} = 0.279 \frac{m}{s}$$

V asumida	V calculada	f
0.1	0.279	0.016
0.279	0.3096	0.013
0.3096	0.3133	0.0127
0.3133	0.312	0.0128

$$V = 0.31 \frac{m}{s}$$

$$Q = V * A = 0.31 * (0.5 * 10) = 1.55 \frac{m^3}{s}$$