

Solution 1.3

Nous avons

$$F_{r1} = \frac{V_1}{\sqrt{gy_1}} = 0,5 \Rightarrow \sqrt{gy_1} = 2V_1 \quad (\text{S1.3a})$$

et

$$F_{r2} = \frac{V_2}{\sqrt{gy_2}} = 3$$

où $y_2 = 0,5y_1$

$$\text{donc } \frac{V_2}{\sqrt{0,5gy_1}} = 3$$

$$\sqrt{gy_1} = \frac{V_2}{3\sqrt{0,5}} \quad (\text{S1.3b})$$

$$(\text{S1.3a}) = (\text{S1.3b}) \Rightarrow 2V_1 = \frac{V_2}{3\sqrt{0,5}} \Rightarrow V_2 = 4,24V_1$$

de plus $Q_1 = Q_2$ ou

$$b_1y_1V_1 = b_2y_2V_2 \Rightarrow b_2 = \frac{b_1y_1V_1}{y_2V_2} = \frac{b_1y_1V_1}{(0,5y_1)(4,24V_1)} = \frac{b_1}{0,5 \times 4,24} = \frac{3,66}{0,5 \times 4,24}$$

$$b_2 = 1,72 \text{ m}.$$