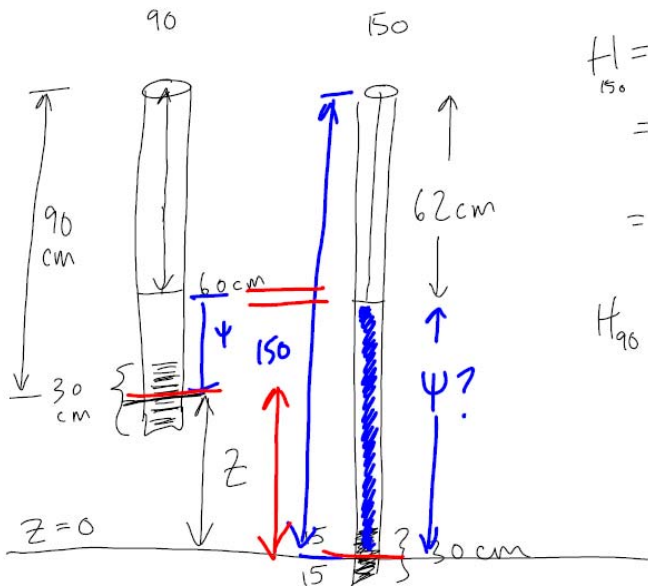


Calculating the hydraulic gradient – more practise

Two piezometers (90 cm and 150 cm) with 30 cm slotted intakes are installed in the ground and have the same pipe top elevation. The “in” measurement for the 90 and 150 cm piezometers are 60 and 62 cm. What’s the vertical gradient?



$$H_{150} = z + \psi$$

$$= 0 + 150 - 62$$

$$= 88$$

$$H_{90} = z + \psi$$

$$= 60 + (90 - 60)$$

$$= 90$$

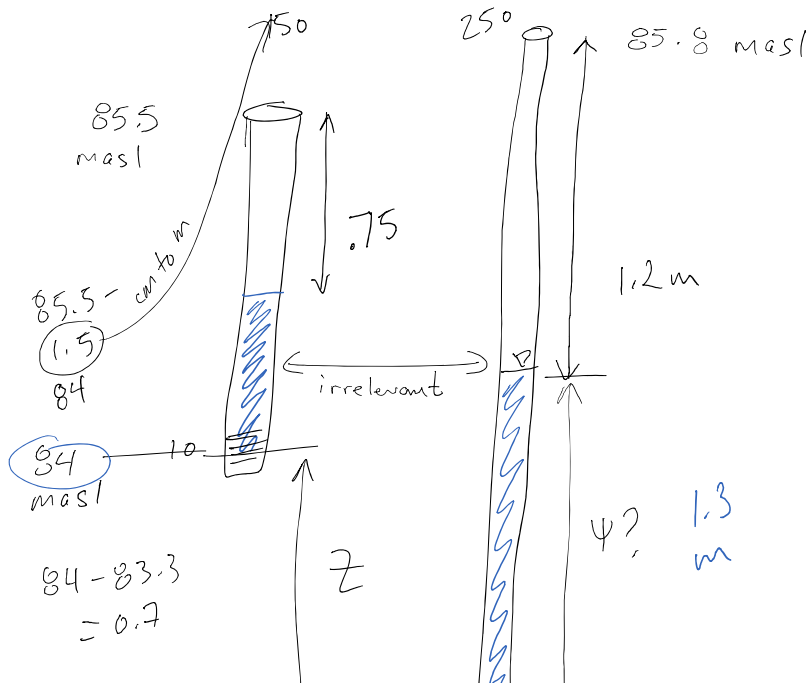
$$\Delta H = H - H$$

$$90 - 88 = 2 \text{ cm}$$

$$\Delta l = 150 - 90 = 60 \text{ cm}$$

$$\frac{2 \text{ cm}}{60 \text{ cm}}$$

Piezometer 1 (150 cm) has a pipe top elevation of 85.5 masl and an “in” value of 0.75 m. Piezometer 2 (2.5 m deep) has a pipe top elevation of 85.8 masl and an “in” value of 1.2 m. Piezometers have 10 cm slotted intakes. What’s the vertical gradient?



$$H_{250} = z + \psi$$

$$= 0 + 1.3$$

$$H_{150} = z + \psi$$

$$= 0.7 + .75$$

$$\Delta H = 1.45 - 1.3$$

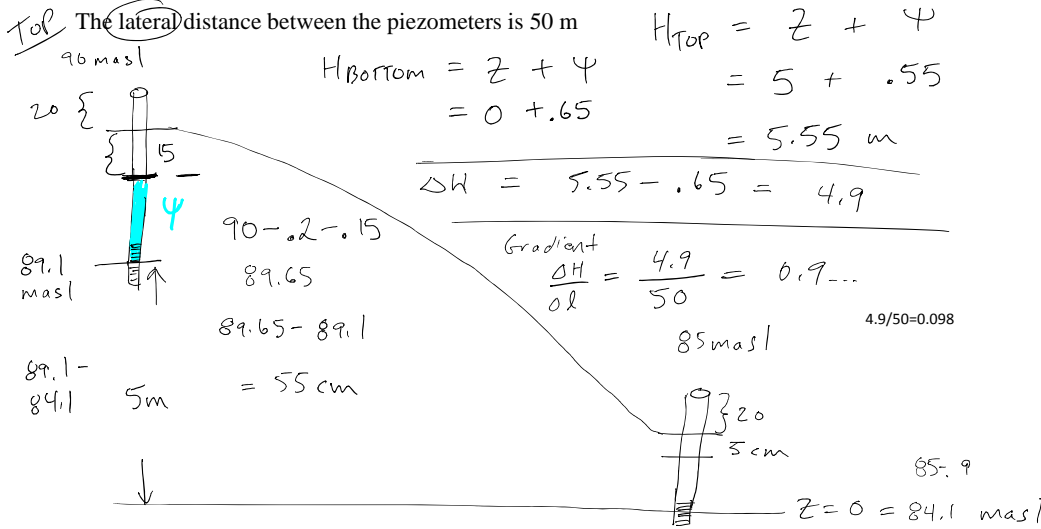
$$\frac{\Delta H}{\Delta l} = \frac{15 \text{ cm}}{70 \text{ cm}} =$$

$$85.8 - 2.5$$

$$84 - 83.3$$



	Piezo A	Piezo B
Pipe top elevation (masl)	90	85
Length (cm)	90	90
Water level below ground surface (cm)	15	5
Slotted (cm)	15	15
Out (cm)	20	20



A well and a piezometer are installed side by side. The piezometer is 1.5 m deep and has an "in" of 50 cm. The well has an "in" of 45 cm. The pipes have the same pipe top elevation. Slotted intakes are 10 cm from the water table = atmospheric z

