

A hand-drawn graph illustrating a piecewise linear function and its quadratic approximation. The horizontal axis is labeled x and the vertical axis is labeled y . The x -axis is marked with integers from 1 to 9. The piecewise linear function is defined by vertices at $(1, 1)$, $(3, 2)$, $(5, 0.5)$, $(6, 1.5)$, $(8, 2)$, and $(9, 2.2)$. A smooth red curve represents the quadratic approximation, which is tangent to the piecewise linear function at $x = 5$. The area between the piecewise linear function and the red curve is shaded with red diagonal lines. The area between the red curve and the piecewise linear function is shaded with yellow diagonal lines. A vertical double-headed arrow at $x = 5$ indicates the distance between the piecewise linear function and the red curve at that point. Arrows point to the red curve and the shaded areas.

$$[Q_{P1} = \dots m]$$

$$St = \sum \text{Area trapezi} = A_1 + A_2 + A_3 + \dots + A_f$$

$$St = \frac{Q_1 + Q_2}{2} \cdot \overline{1-2} + \frac{Q_2 + Q_3}{2} \cdot \overline{2-3} \dots + \frac{Q_8 + Q_9}{2} \cdot \overline{8-9}$$

componso $A_s = A_r \Rightarrow St = Sp$

$Sp =$ area trapesso lunetta

$$Sp = \frac{Q_1^p + Q_9^p}{2} \cdot \overline{1-9} \rightarrow \text{dist propr.}$$

$$Sp = St$$

$$\frac{2St}{1-9} = (Q_1^p + Q_9^p) \cdot \frac{\overline{1-9}}{\overline{1-9}}$$

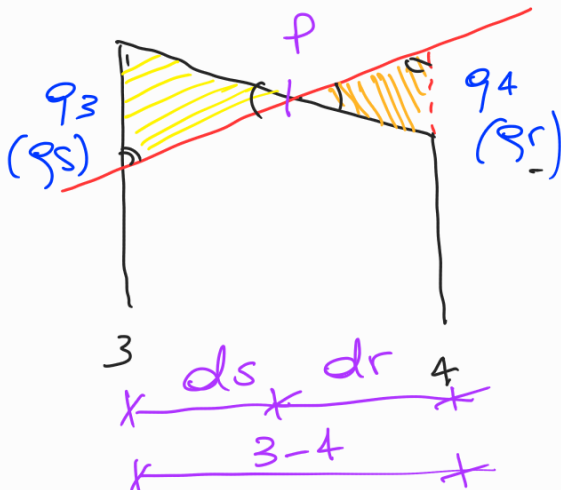
$$Q_f^p = \frac{2St}{d. tot} - Q_1^p$$

$$pliv = \frac{Q_f^p - Q_0^p}{d. tot}$$

$$Q_n^p = Q_0^p + pliv \cdot \overline{1-n}$$

(flessa a picchetta n)

$$q_n = Q_n^p - Q_n^T$$



$$q_s : ds = q_r : dr$$

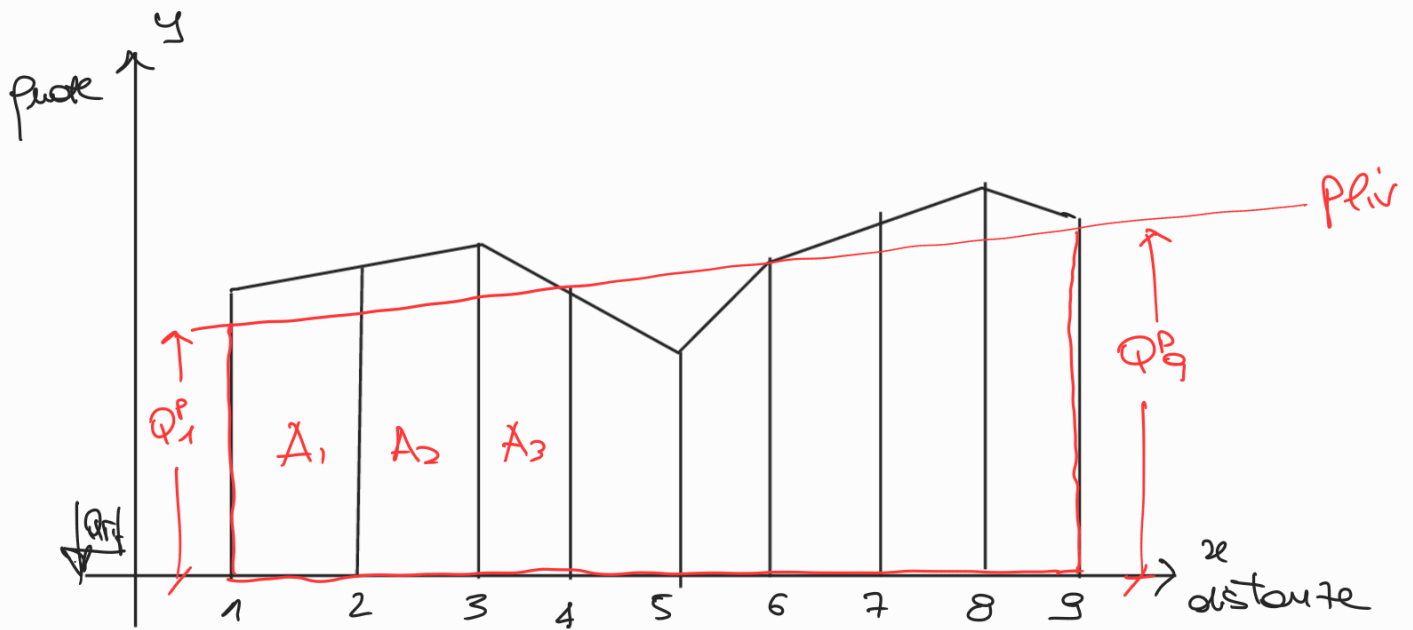
$$q_s : q_r = ds : dr$$

$$q_s : (q_r + q_s) = ds : \underbrace{(ds + dr)}_{d_{pic}}$$

$$ds = \frac{|q_s| \cdot d_{pic}}{|q_r| + |q_s|}$$

$$dr = d_{pic} - ds$$

2) UNA LINEA CON PENDENZA ASSEGNATA



e.n
pliv
dist pr z
Qt i

e.i
Qp1
Qpf

compensazione

$$St = Sp$$

$$(As = A9)$$

$$St = A_1 + A_2 + A_3 + \dots + A_n$$

$$St = \frac{Q_1^t + Q_2^t}{2} \cdot 1-2 + \frac{Q_2^t + Q_3^t}{2} \cdot 2-3 + \dots + \frac{Q_8^t + Q_9^t}{2} \cdot 8-9$$

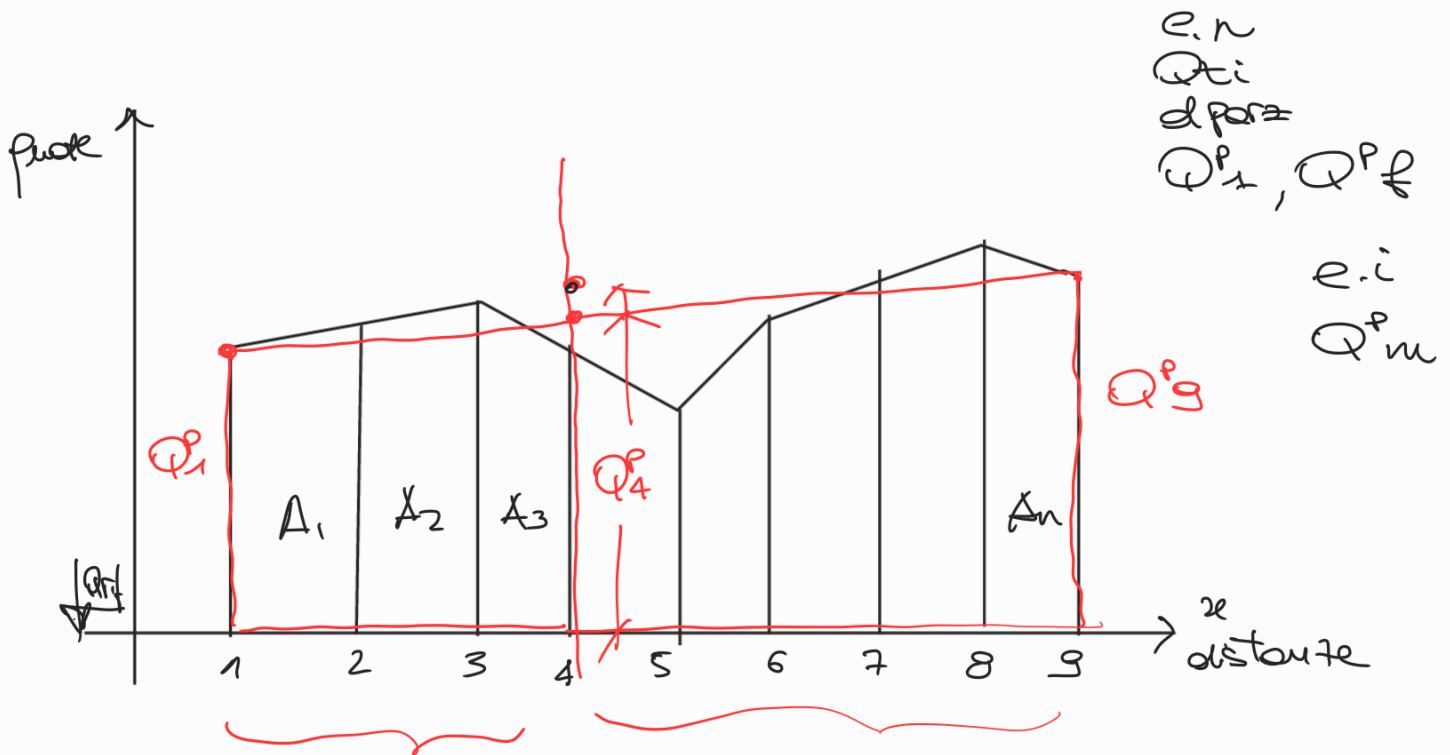
$$\left\{ \begin{aligned} St = Sp &= \frac{Q_1^p + Q_p^f}{2} \cdot d_{tot} \quad (1-9) \\ Q_p^f &= Q_1^p + \underbrace{pliv \cdot d_{tot}}_{\Delta_{1-9}} \end{aligned} \right.$$

$$\frac{2St}{d_{tot}} = Q_1^p + (Q_1^p + pliv \cdot d_{tot}) \cdot \frac{d_{tot}}{d_{tot}}$$

$$\frac{2St}{d_{tot}} = 2Q_1^p + pliv \cdot d_{tot}$$

$$\frac{2Q_1^p}{2} = \frac{\frac{2St}{d_{tot}} - pliv \cdot d_{tot}}{2} = \frac{St}{d_{tot}} - \frac{pliv \cdot d_{tot}}{2}$$

3) DUE LIVELLI CONSECUTIVI CON QUOTA INIZIALE E FINALE ASSEGNATA



compens $A_R = A_S \Rightarrow \Sigma t = \Sigma p$

$$\begin{aligned} S_f &= \sum \Delta \text{ tropes del terreno} = A_1 + A_2 + A_3 + \dots + A_n \\ &= \frac{Q_1^t + Q_2^t}{2} \cdot \overline{1-2} + \frac{Q_2^t + Q_3^t}{2} \cdot \overline{2-3} + \dots + \frac{Q_8^t + Q_9^t}{2} \cdot \overline{8-9} \end{aligned}$$

$$S_p = \frac{Q_1^p + Q_4^p}{2} \cdot \overline{1-4} + \frac{Q_4^p + Q_9^p}{2} \cdot \overline{4-9} = 86.2$$

$$2. St = Q_1^P \cdot \overline{1-4} + Q_4^P \cdot \overline{1-4} + Q_4^P \cdot \overline{4-9} + Q_9^P \cdot \overline{4-9}$$

$$2st = Q^P_{1 \cdot l-4} + Q^P_4(\underbrace{l-4+4-3}_{d+\star}) + Q^P_9 \cdot \overline{4-3}$$

$$Q_4^p \cdot d_{tot} = 2St - Q_{1: l-4} - Q_{p: 4-9}$$

$$Q^P_4 = \frac{28t - Q^P_1 \cdot \overline{1-4} - Q^P_f \cdot \overline{4-9}}{d \cdot b \cdot t}$$