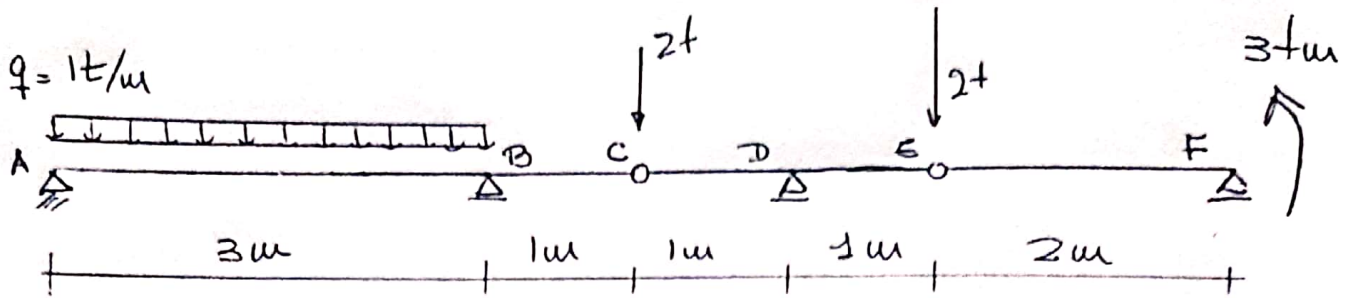


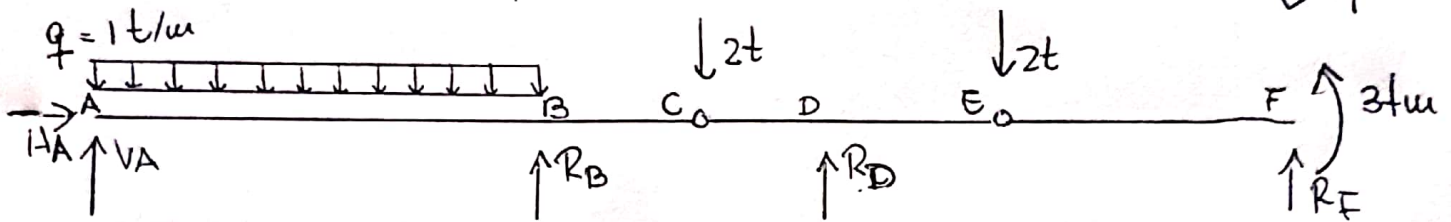
# Cálculo de Viga Gerber

a) Datos



b) Diagrama de Cuerpo Libre

Se eliminan los vínculos y se ponen en evidencia las reacciones correspondientes.



c) Cálculo de las reacciones

$$\sum M_{dere}^E = 0 \Rightarrow 3tm + 2m R_F = 0 \Rightarrow R_F = -1,5t$$

$$\sum M_{dere}^C = 0 \Rightarrow 3tm + 4m R_F - 2t \cdot 2m + R_D 1m = 0$$

$$\therefore R_D = -\frac{3tm - 4m R_F + 4tm}{1m} = -\frac{3tm + 6tm + 4tm}{1m} = 7t$$

$$\sum F_H = 0 \Rightarrow H_A = 0$$

$$\sum F_V = 0 \Rightarrow V_A + R_B + R_D + R_F - 1t/m \cdot 3m - 2t - 2t = 0$$

$$\sum M_A = 0 \Rightarrow 3m R_B + 5m R_D + 8m R_F + 3tm - 2t \cdot 6m - 2t \cdot 4m = 0$$

$$-36 \cdot 1,5m = 0$$

$$R_B = \frac{1}{3} (-35 + 12 - 3 + 12 + 8 + 4,5) = -0,5t$$

$$V_A = -R_B - R_D - R_F + 3 + 2 + 2 = 0,5 - 7 + 1,5 + 3 + 2 + 2 = 2t$$

Comprobación

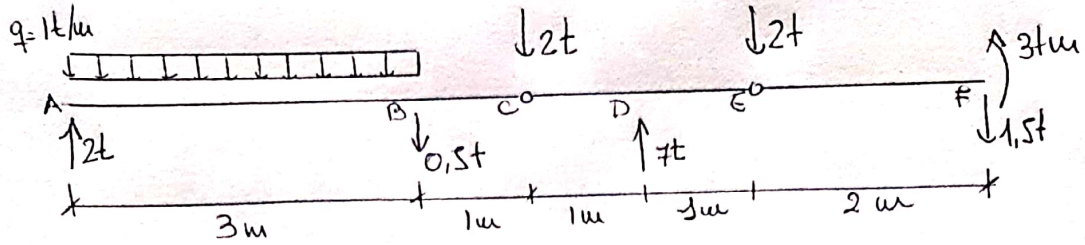
$$\sum M_{izq}^C = 0 \Rightarrow -4m V_A - 1m R_B + 3t \cdot 2,5m = -8 + 0,5 + 7,5 = 0 \checkmark$$

Pregunta Conceptual

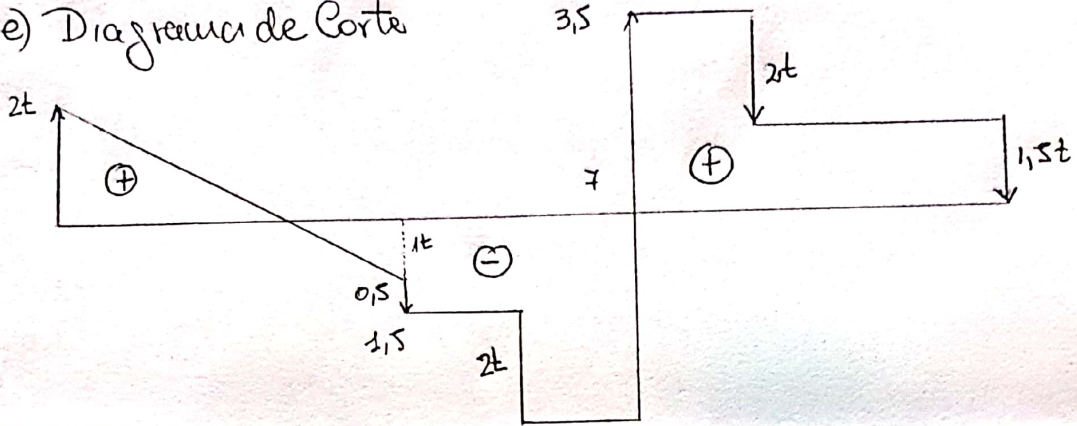
Si la carga repartida vale  $q = 2t/m$  ¿Cambian los valores de  $R_D$  y  $R_F$ ? Justificar.

Si el momento vale  $5tm$  ¿cambia  $R_D$ ?

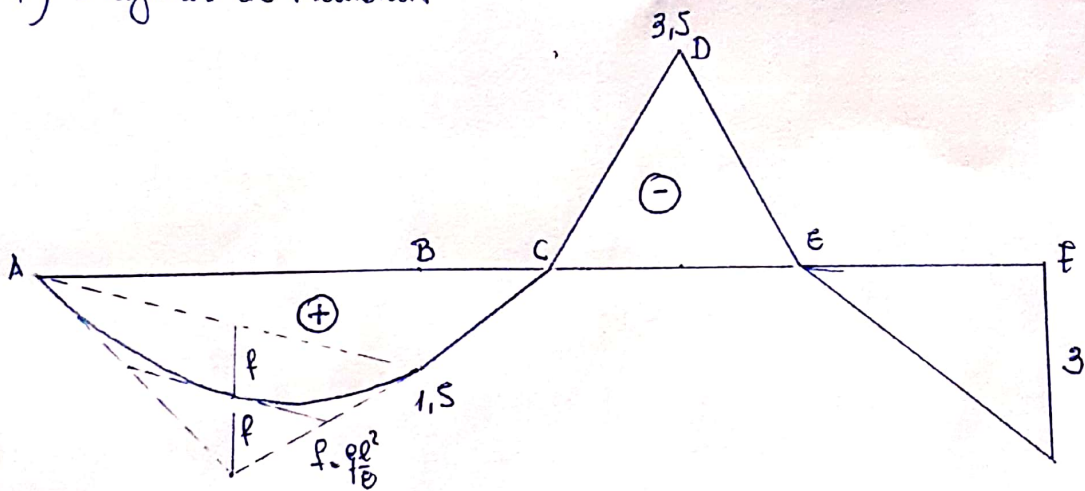
a) DCL



e) Diagrama de Corte



f) Diagrama de Momentos



g) Deformada

