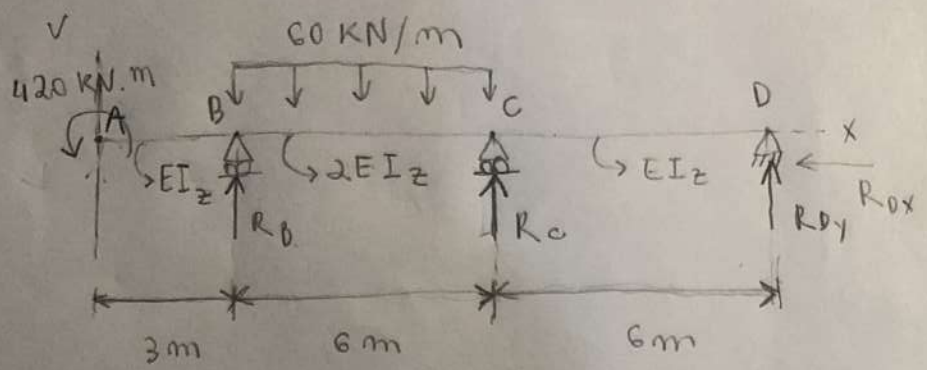
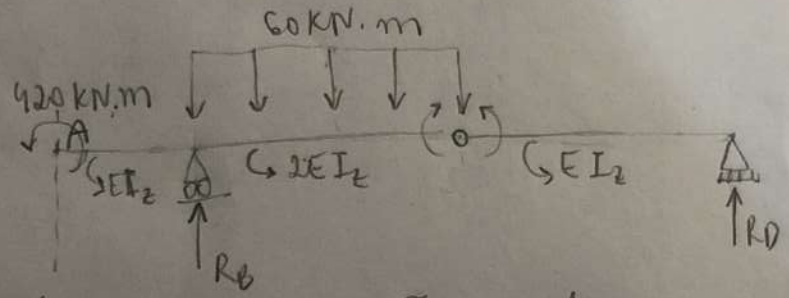
2ª Questão (5,0):



Grau de estaticidade: $g = 4 - 3 = 1$



→ somatório das reações e dos momentos:

$$\Sigma F_y = R_B + R_C + R_D - (60KN/m \times 6\,m) = 0$$

$$\therefore R_B + R_C + R_D = 360KN \;;$$

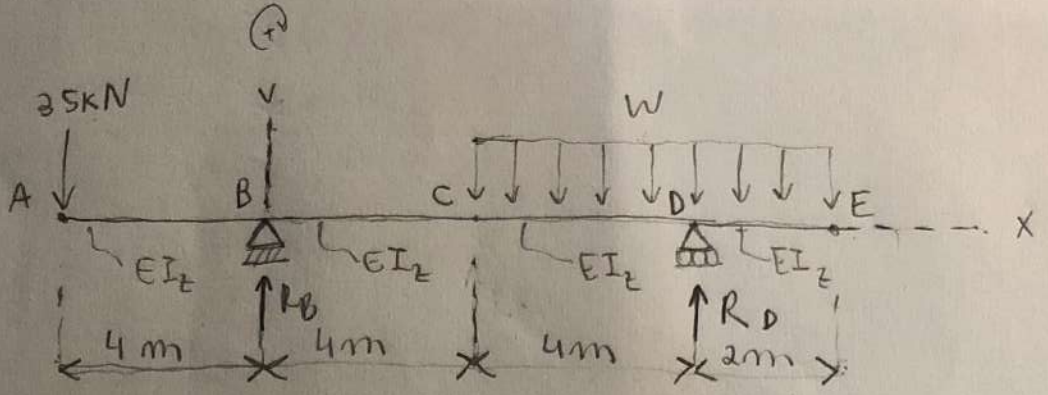
$$\Sigma M_B = 420KN\,m - (60KN/m)(6m)(3m) + (R_C \times 3m) + (R_D \times 12m) = 0$$

$$\therefore (C_y \times 6m) + (R_D \times 12m) = 600KN.m \;;$$

→ condições de contorno

- $x = 3m,\ V = 0$
- $x = 9m,\ V = 0$
- $x = 15m,\ V = 0$

1ª Questão (5,0)



Em B: $\theta(0) = 0$; $V(0) = 0$;

$$\Sigma F_V = 0 \Rightarrow -35 + R_B - 80 \cdot 6 + R_D = 0$$

$$\therefore R_B + R_D = 515 \text{ kN}$$

$$\Sigma M_B = 0 \Rightarrow 35 \times 4 + R_D \times 8 - 480 \times 7$$

$$\therefore R_D = 412,5 \text{ kN}$$

sendo B engastado,

$$V_A = \frac{-PL^3}{3EI} = \frac{-35 \cdot 4^3}{3(7,02 \cdot 10^7)} = -0,01063 \text{ m}$$