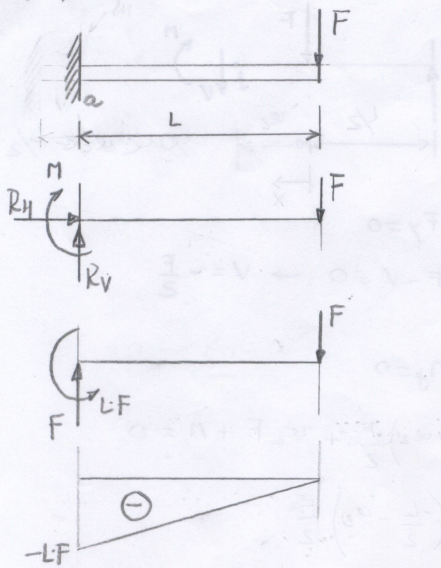


1.a)



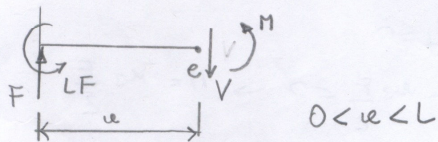
$$\rightarrow \sum F_x = 0 \rightarrow R_H = 0$$

$$+\uparrow \sum F_y = 0$$

$$R_V - F = 0 \rightarrow R_V = F$$

$$\curvearrowright \sum M_a = 0$$

$$-M - L \cdot F = 0 \rightarrow M = -LF$$



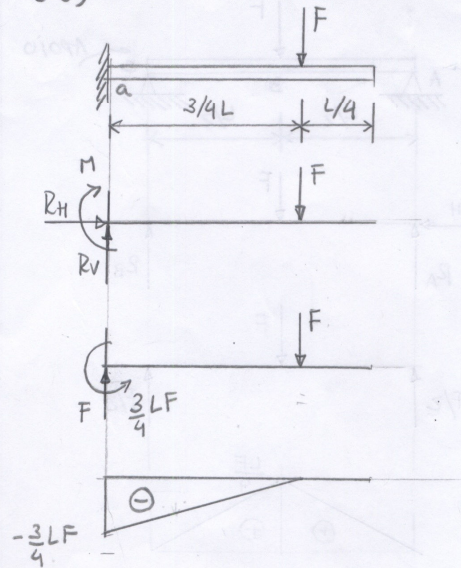
$$+\uparrow \sum F_y = 0$$

$$F - V = 0 \rightarrow V = F$$

$$\curvearrowright \sum M_e = 0$$

$$-uF + LF + M = 0 \rightarrow M = (u - L)F$$

1.b)



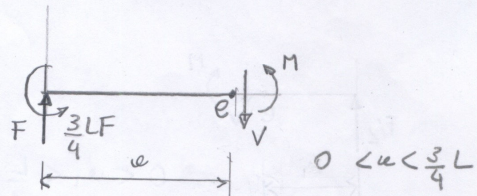
$$+\rightarrow \sum F_x = 0 \rightarrow R_H = 0$$

$$+\uparrow \sum F_y = 0$$

$$R_V - F = 0 \rightarrow R_V = F$$

$$\curvearrowright \sum M_a = 0$$

$$-M - \frac{3}{4}LF = 0 \rightarrow M = -\frac{3}{4}LF$$



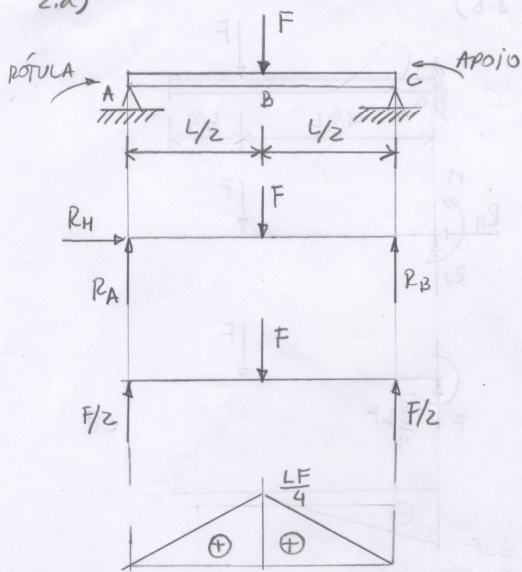
$$+\uparrow \sum F_y = 0$$

$$F - V = 0 \rightarrow V = F$$

$$\curvearrowright \sum M_e = 0$$

$$-uF + \frac{3}{4}LF + M = 0 \rightarrow M = (u - \frac{3}{4}L)F$$

2.a)



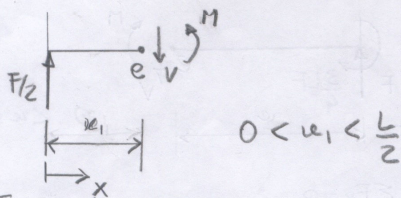
$$\rightarrow \sum F_x = 0 \rightarrow R_H = 0$$

$$\uparrow \sum F_y = 0$$

$$R_A + R_B - F = 0 \rightarrow R_A = \frac{F}{2}$$

$$\curvearrowright \sum M_A = 0$$

$$-\frac{L}{2}F + L R_B = 0 \rightarrow R_B = \frac{F}{2}$$

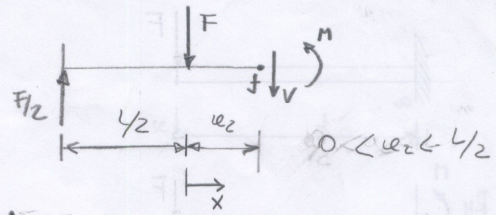


$$\uparrow \sum F_y = 0$$

$$\frac{F}{2} - V = 0 \rightarrow V = \frac{F}{2}$$

$$\curvearrowright \sum M_e = 0$$

$$-\frac{u_1 F}{2} + M = 0 \rightarrow M = \frac{u_1 F}{2}$$



$$\uparrow \sum F_y = 0$$

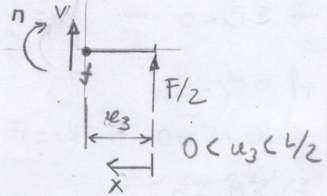
$$\frac{F}{2} - F - V = 0 \rightarrow V = -\frac{F}{2}$$

$$\curvearrowright \sum M_f = 0$$

$$-\left(\frac{L}{2} + u_2\right)\frac{F}{2} + u_2 F + M = 0$$

$$M = \left(\frac{L}{2} - u_2\right)\frac{F}{2}$$

OU



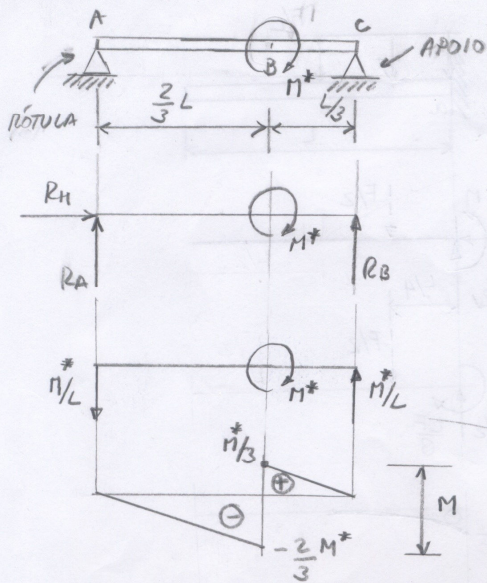
$$\uparrow \sum F_y = 0$$

$$\frac{F}{2} + V = 0 \rightarrow V = -\frac{F}{2}$$

$$\curvearrowright \sum M_f = 0$$

$$-M + u_3 \frac{F}{2} = 0 \rightarrow M = u_3 \frac{F}{2}$$

3.a)



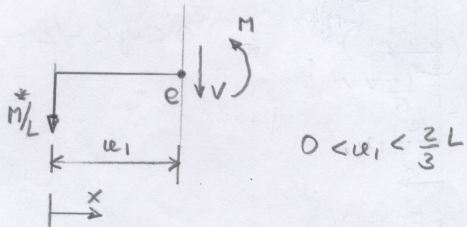
$$\rightarrow \Sigma F_x = 0 \rightarrow R_H = 0$$

$$\uparrow \Sigma F_y = 0$$

$$R_A + R_C = 0 \rightarrow R_A = -R_C = -\frac{M^*}{L}$$

$$\curvearrowright \Sigma M_A = 0$$

$$-M^* + L R_C = 0 \rightarrow R_C = \frac{M^*}{L}$$

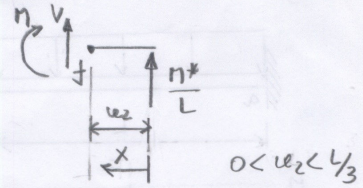


$$\uparrow \Sigma F_y = 0$$

$$-\frac{M^*}{L} - V = 0 \rightarrow V = -\frac{M^*}{L}$$

$$\curvearrowright \Sigma M_e = 0$$

$$u_1 \frac{M^*}{L} + M = 0 \rightarrow M = -u_1 \frac{M^*}{L}$$



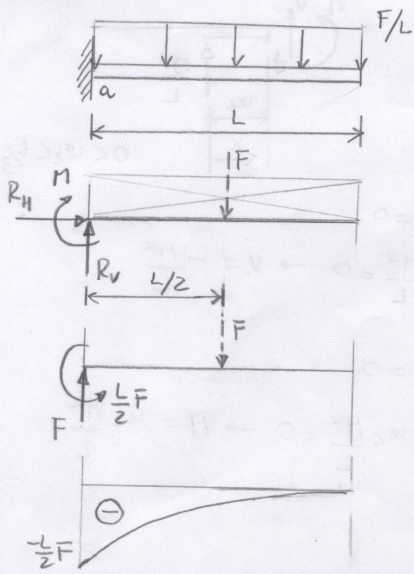
$$\uparrow \Sigma F_y = 0$$

$$V + \frac{M^*}{L} = 0 \rightarrow V = -\frac{M^*}{L}$$

$$\curvearrowright \Sigma M_f = 0$$

$$-M + u_2 \frac{M^*}{L} = 0 \rightarrow M = u_2 \frac{M^*}{L}$$

4.a)



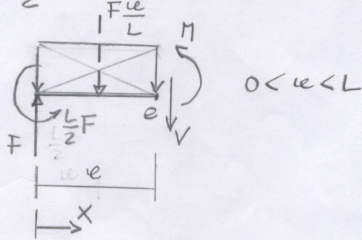
$$\rightarrow \sum F_x = 0 \rightarrow R_H = 0$$

$$\uparrow \sum F_y = 0$$

$$R_V - F = 0 \rightarrow R_V = F$$

$$\curvearrowright \sum M_a = 0$$

$$-\frac{L}{2}F - M = 0 \rightarrow M = -\frac{LF}{2}$$



$$\uparrow \sum F_y = 0$$

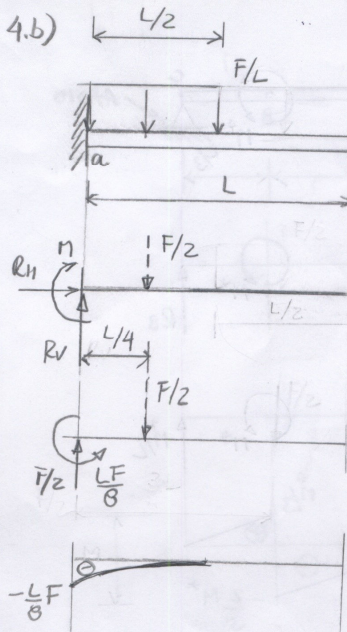
$$F - \frac{Fu}{L} - V = 0 \rightarrow V = \left(1 - \frac{u}{L}\right)F$$

$$\curvearrowright \sum M_e = 0$$

$$-u \cdot F + \frac{L}{2}F + \frac{u}{2} \frac{Fu}{L} + M = 0$$

$$\therefore M = \left(-\frac{1}{2} \frac{u^2}{L} + u - \frac{L}{2}\right)F$$

4.b)



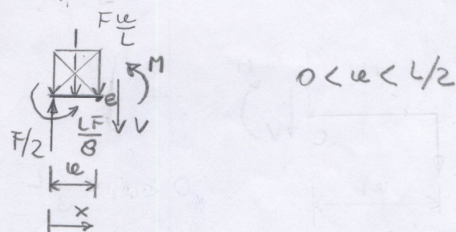
$$\rightarrow \sum F_x = 0 \rightarrow R_H = 0$$

$$\uparrow \sum F_y = 0$$

$$R_V - F/2 = 0 \rightarrow R_V = F/2$$

$$\curvearrowright \sum M_a = 0$$

$$-\frac{L}{4} \frac{F}{2} - M = 0 \rightarrow M = -\frac{LF}{8}$$



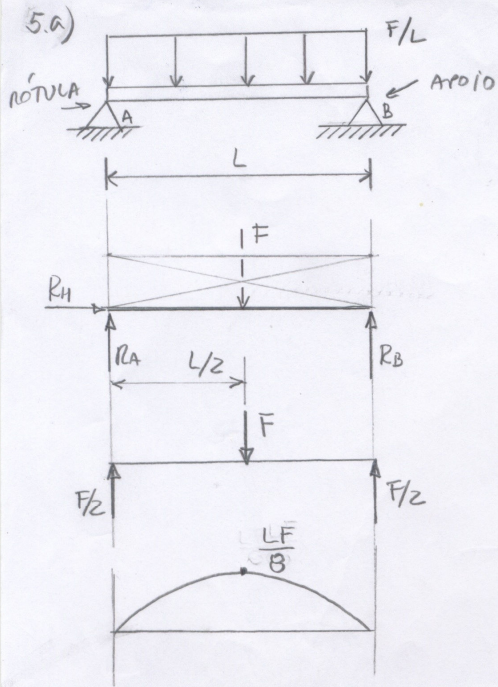
$$\uparrow \sum F_y = 0$$

$$\frac{F}{2} - \frac{Fu}{L} - V = 0 \rightarrow V = \left(\frac{1}{2} - \frac{u}{L}\right)F$$

$$\curvearrowright \sum M_e = 0$$

$$-u \frac{F}{2} + \frac{L}{8}F + \frac{u}{2} \frac{Fu}{L} + M = 0$$

$$\therefore M = \left(-\frac{1}{2} \frac{u^2}{L} + \frac{u}{2} - \frac{L}{8}\right)F$$



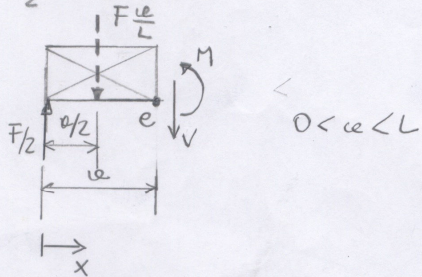
$$\uparrow \sum F_x = 0 \rightarrow R_H = 0$$

$$\uparrow \sum F_y = 0$$

$$R_A + R_B - F = 0 \rightarrow R_A = \frac{F}{2}$$

$$\circlearrowleft \sum M_A = 0$$

$$-\frac{L}{2} \cdot F + L R_B = 0 \rightarrow R_B = \frac{F}{2}$$



$$\uparrow \sum F_y = 0$$

$$\frac{F}{2} - \frac{F e}{L} - V = 0 \rightarrow V = \left(\frac{1}{2} - \frac{e}{L} \right) F$$

$$\circlearrowleft \sum M_e = 0$$

$$-e \cdot \frac{F}{2} + \frac{e}{2} \frac{F e}{L} + M = 0$$

$$\therefore M = \left(-\frac{e^2}{L} + \frac{e}{2} \right) \frac{F}{2}$$