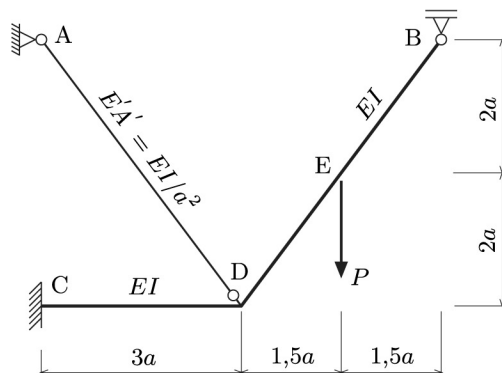
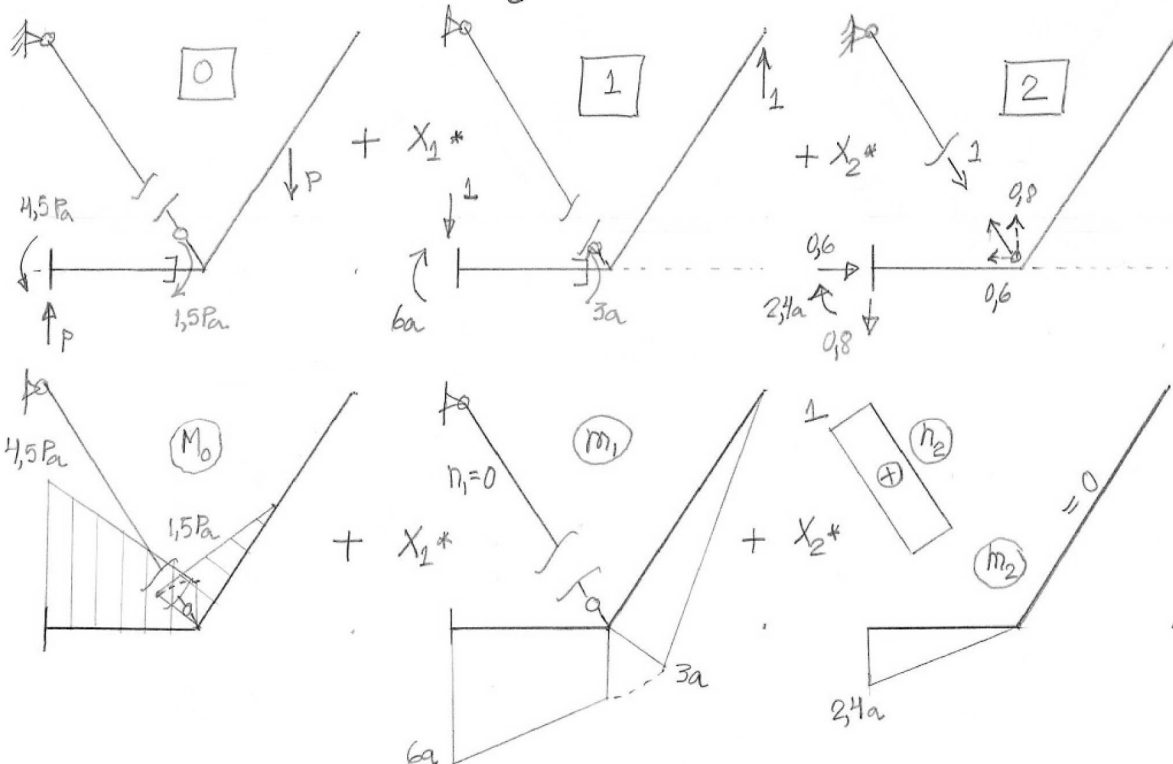
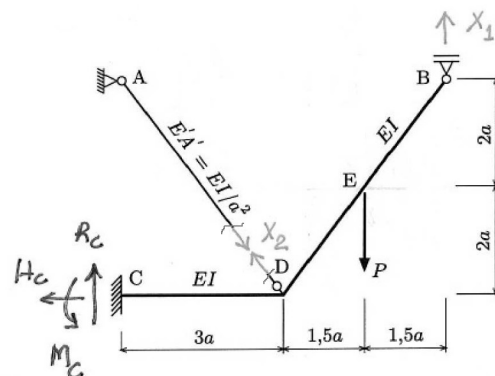


Trace os diagramas de momento fletor e força normal para a estrutura da figura. Despreze os efeitos das deformações por N e V na barra CDEB; e considere $E'A' = EI/a^2$ para a barra AD.



EIF



$$F_{11} = \frac{3a}{6EI} [2(6a)^2 + 2(3a)^2 + 6a \times 3a + 3a \times 6a] + \frac{5a}{3EI} (3a)^2 = \frac{78a^3}{EI}$$

$$F_{22} = \frac{3a}{3EI} (24a)^2 + \frac{1^2}{EA} \times 5a = 10,76 \frac{a^3}{EI}$$

$$F_{12} = \frac{3a}{6EI} (2 \times 6a \times 24a + 3a \times 24a) = \frac{18a^3}{EI}$$

$$d_{01} = -\frac{3a}{6EI} (2 \times 4,5Pa \times 6a + 2 \times 1,5Pa \times 3a + 4,5Pa \times 3a + 1,5Pa \times 6a) - \frac{25a}{6EI} (2 \times 1,5Pa \times 3a + 1,5Pa \times 1,5a) = -47,438 \frac{Pa^3}{EI}$$

$$d_{02} = -\frac{3a}{6EI} (2 \times 4,5Pa \times 24a + 1,5Pa \times 24a) = -12,6 \frac{Pa^3}{EI}$$

$$\frac{a}{EI} \begin{bmatrix} 78 & 18 \\ 18 & 10,76 \end{bmatrix} \begin{Bmatrix} X_1 \\ X_2 \end{Bmatrix} = \begin{Bmatrix} 47,438 \\ 12,6 \end{Bmatrix} \frac{Pa^3}{EI}$$

$$X_1 = \frac{47,438 \times 10,76 - 12,6 \times 18}{78 \times 10,76 - 18^2} P = 0,55 P$$

$$X_2 = \frac{78 \times 12,6 - 18 \times 47,438}{515,28} = 0,25 P$$

