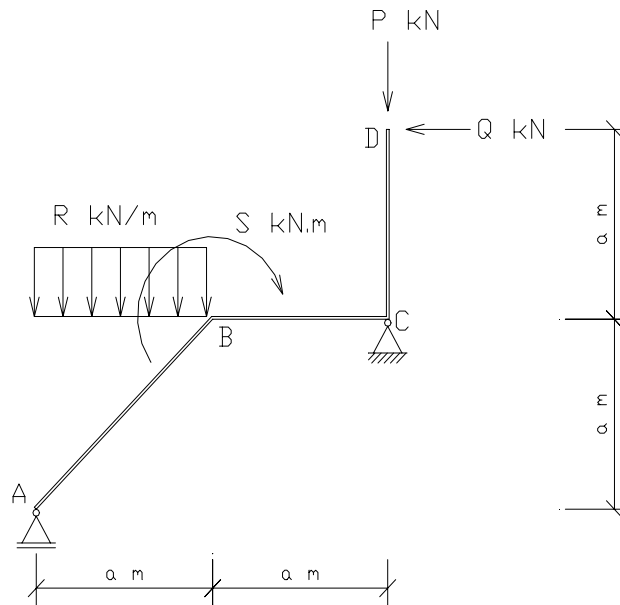
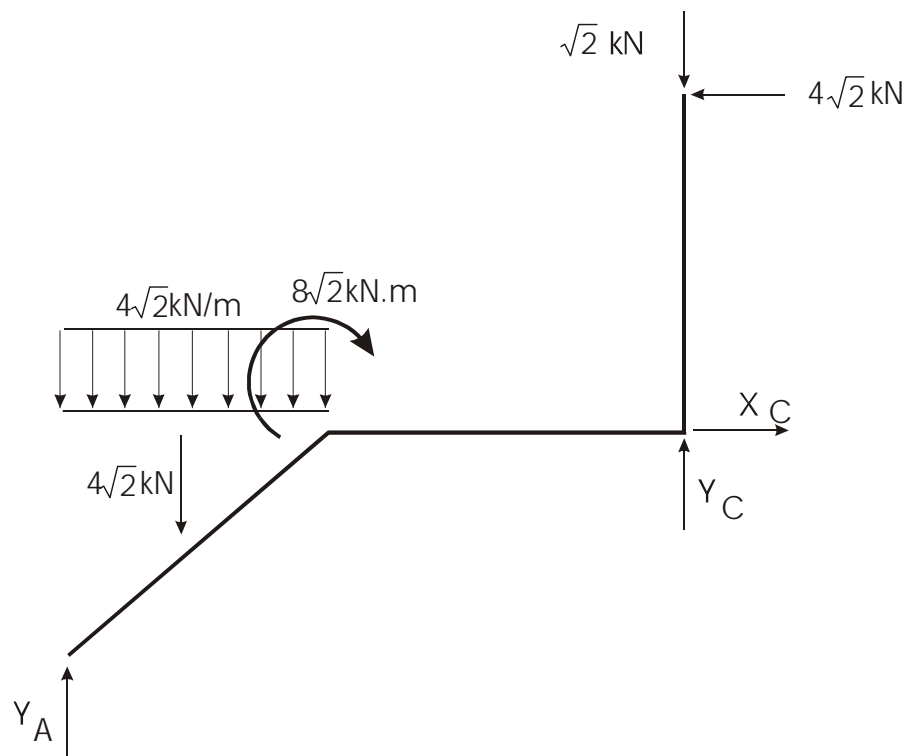


Questão 1. Na estrutura plana da figura – barra poligonal ABCD – os carregamentos externos indicados são tais que  $P = \sqrt{2}$  ;  $Q = 2\sqrt{2}$  ;  $R = 4\sqrt{2}$  ;  $S = 8\sqrt{2}$  ;  $a = 1$ . Determine a reação em A e os diagramas dos esforços solicitantes em AB.

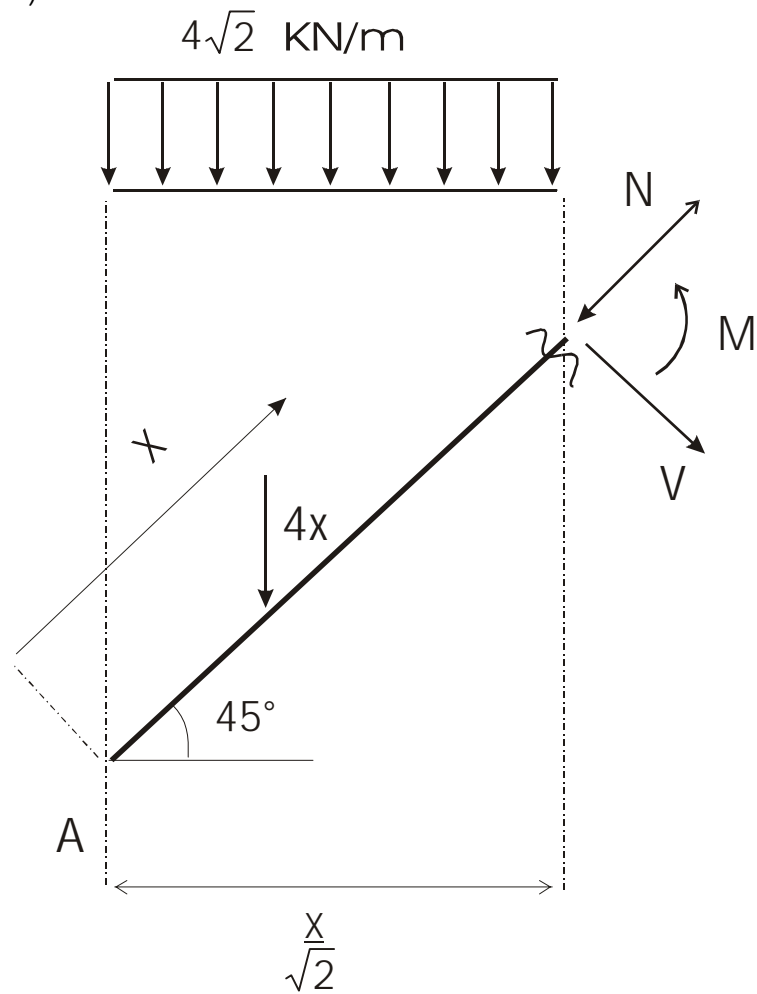


Solução:

$$1) \sum M_{(C)} = 0 = -Y_A \cdot 2a + R \cdot a \cdot 1,5 \cdot a - S + Q \cdot a \Rightarrow Y_A = 0$$



2)



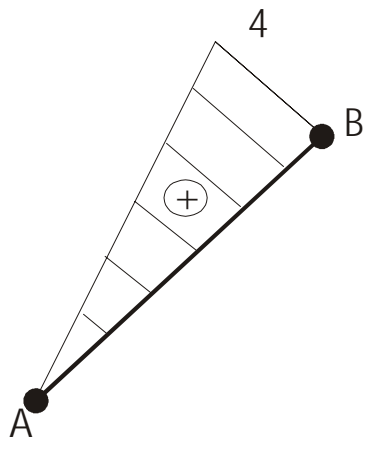
Equilibrio:

$$\text{a) } \frac{-4 \cdot x}{\sqrt{2}} + N = 0 \quad \Rightarrow \quad N = \frac{4 \cdot x}{\sqrt{2}} \quad \begin{array}{l} N(0) = 0 \\ N(\sqrt{2}) = 4 \end{array}$$

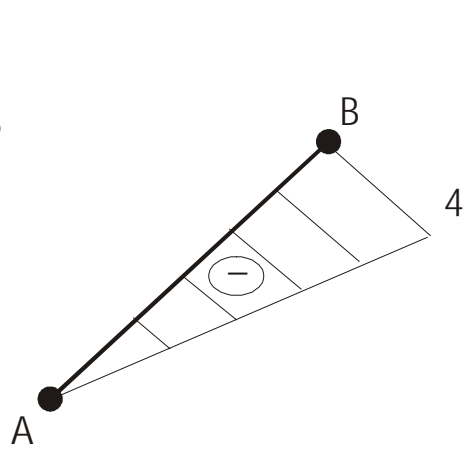
$$\text{b) } \frac{-4 \cdot x}{\sqrt{2}} - V = 0 \quad \Rightarrow \quad V = \frac{-4 \cdot x}{\sqrt{2}} \quad \begin{array}{l} V(0) = 0 \\ V(\sqrt{2}) = -4 \end{array}$$

$$\text{c) } 4 \cdot x \cdot \frac{x}{2 \cdot \sqrt{2}} + M = 0 \quad \Rightarrow \quad M = \frac{-2 \cdot x^2}{\sqrt{2}} \quad \begin{array}{l} M(0) = 0 \\ M(\sqrt{2}) = -2 \cdot \sqrt{2} \end{array}$$

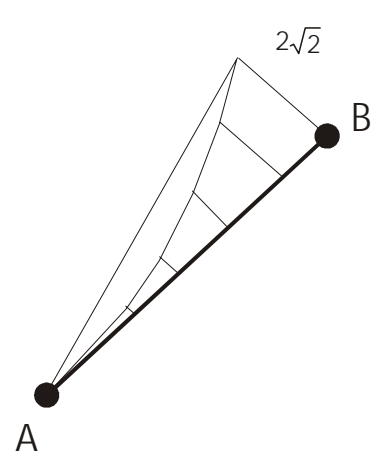
3) Diagramas



N



V



M