Teoria das Estruturas I - Aula 05



Diagramas de Estado de Pórticos Planos Isostáticos Via Método Direto

- Método da Superposição dos Efeitos

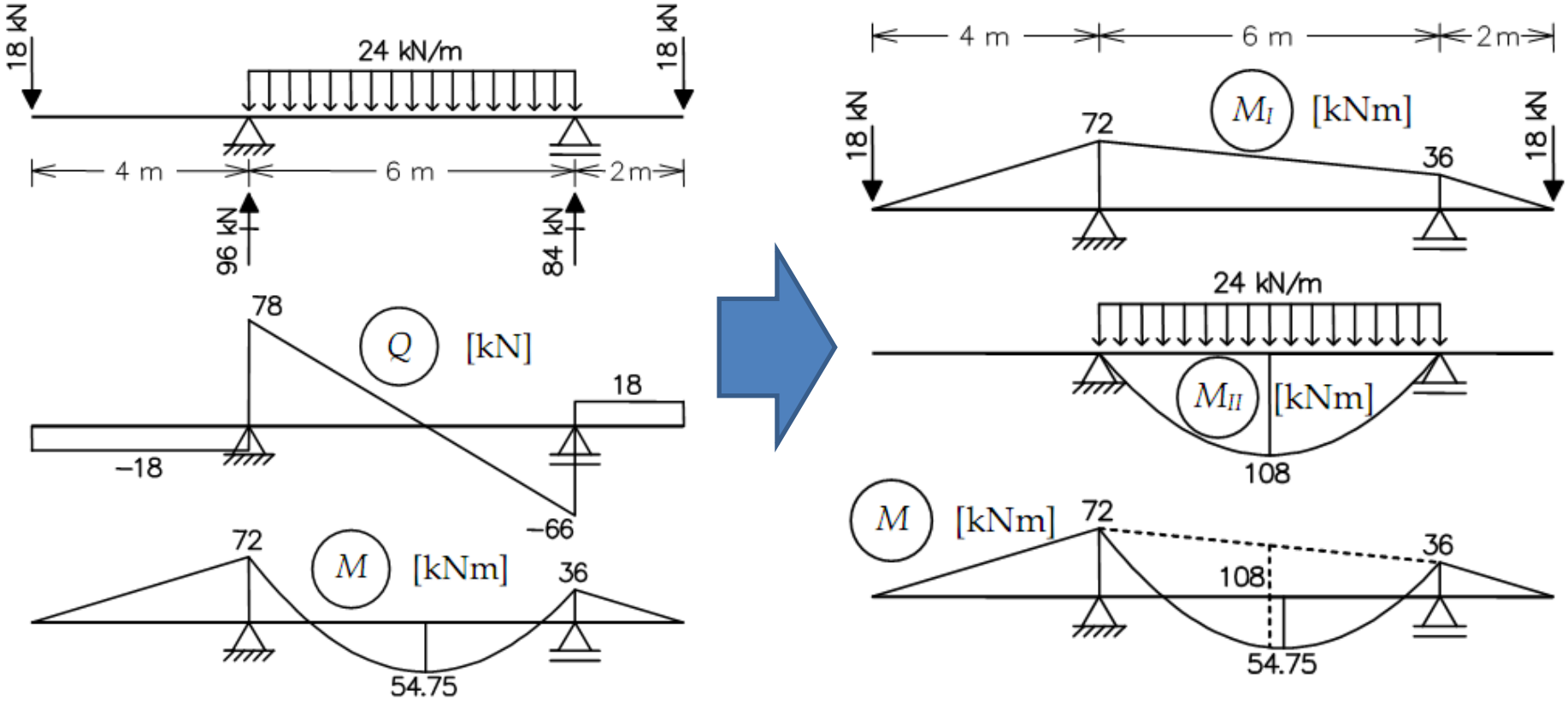
Prof. Juliano J. Scremin

Universidade POSITIVO

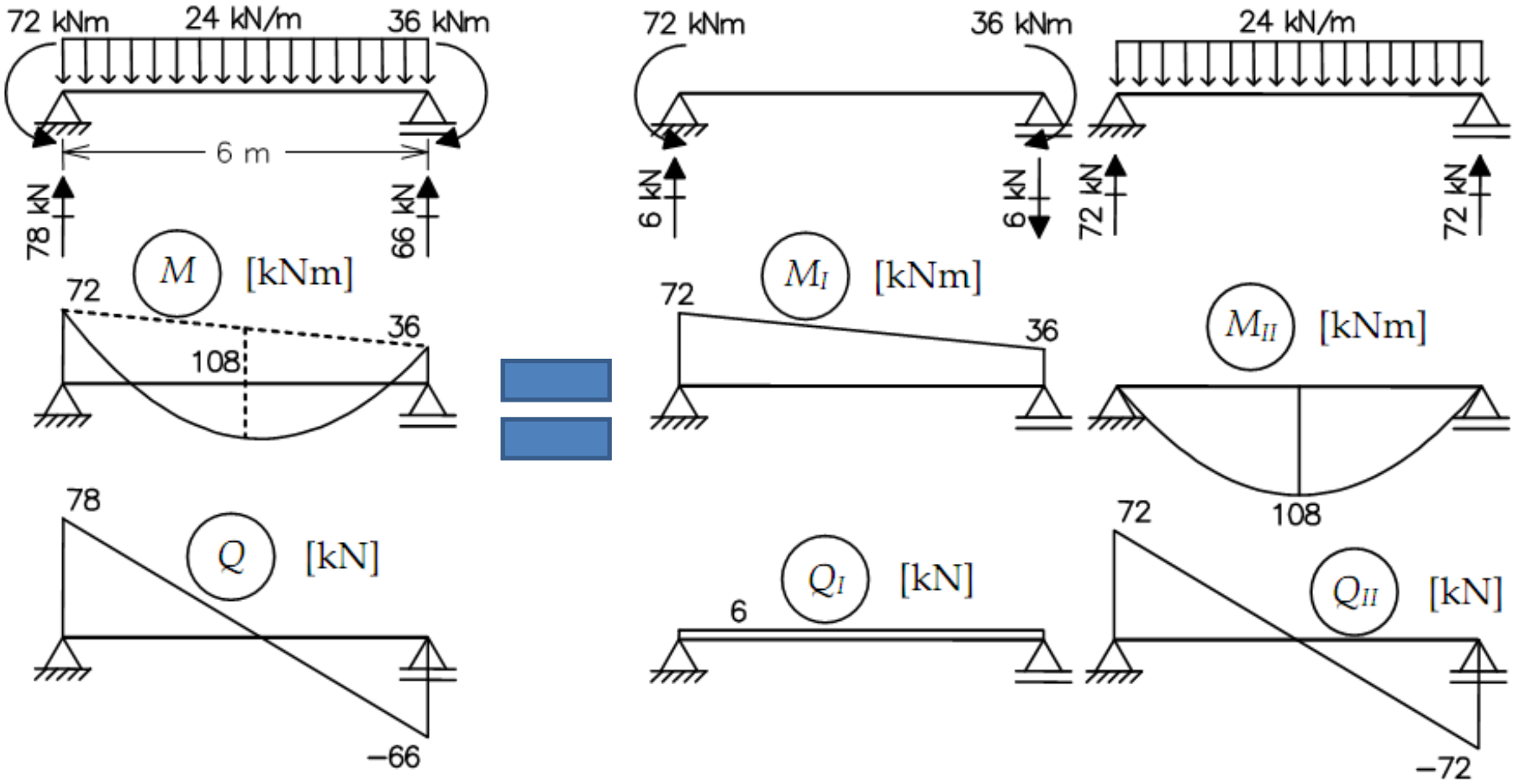
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Aula 05 - Seção 01:
Método da Superposição de Efeitos

Superposição de Efeitos (1)

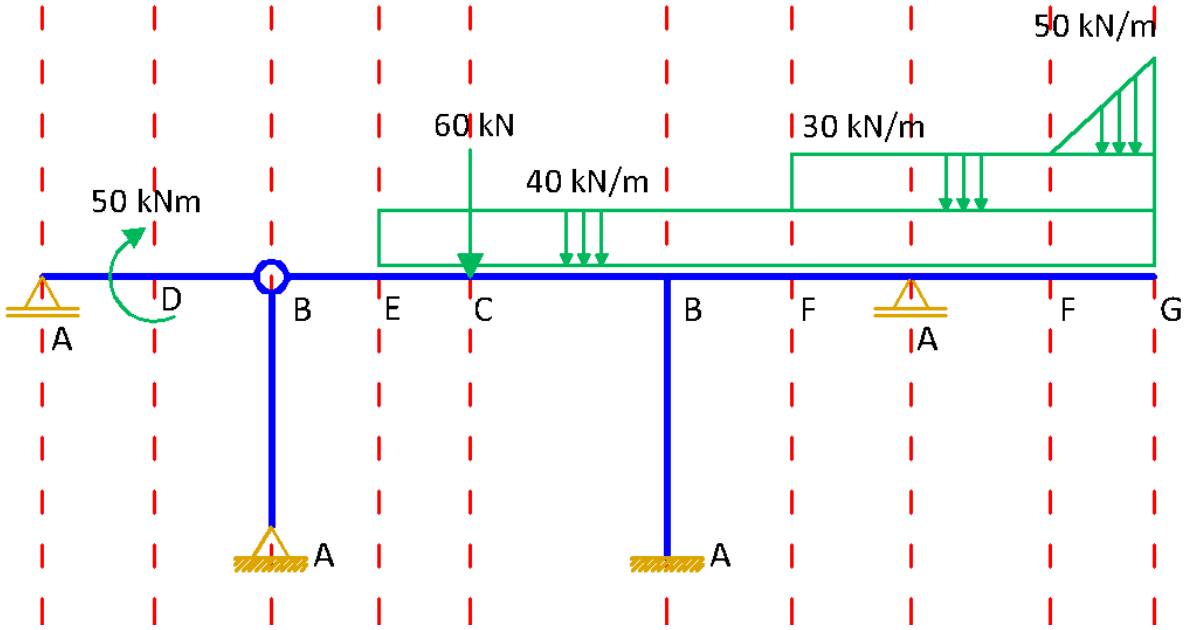


Superposição de Efeitos (2)

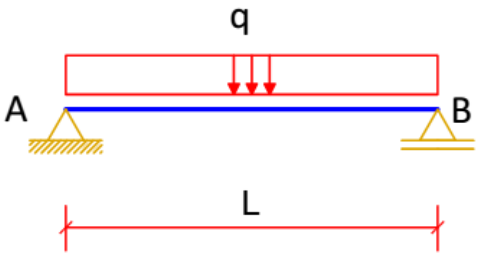


Pontos de Singularidade - Exemplos

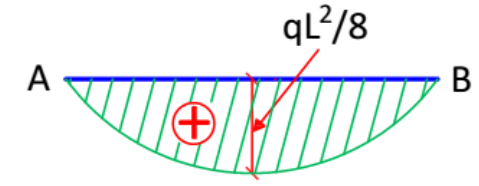
A. Apoios;
B. Vínculos internos – rótulas e engastes;
C. Cargas concentradas;
D. Momento fletor concentrado;
E. Pontos de término de cargas distribuídas em meio a viga;
F. Pontos de variação de carga distribuída;
G. Ponta de balanço;



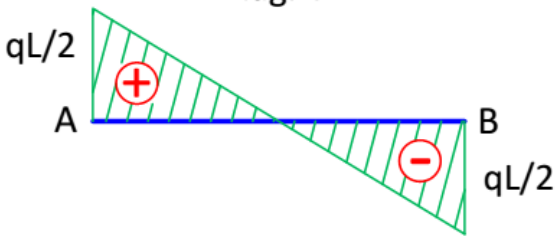
Vigas Bi-Apoiadas Básicas

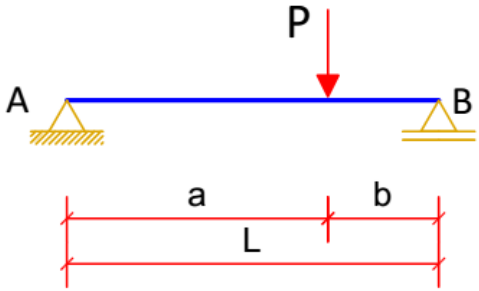


Diag. M

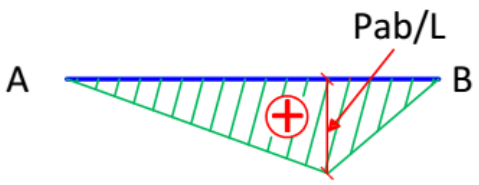


Diag. V

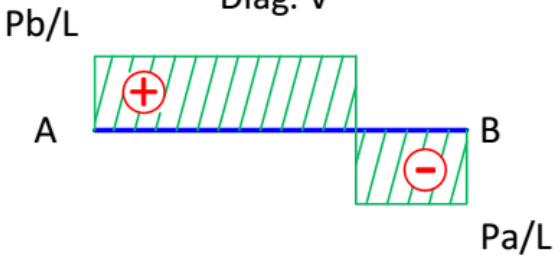


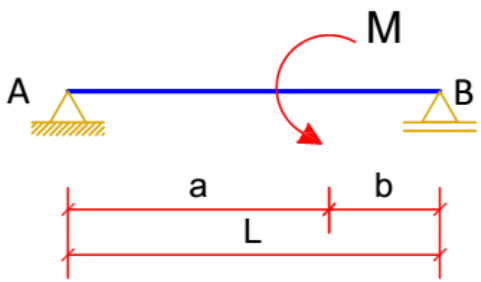


Diag. M

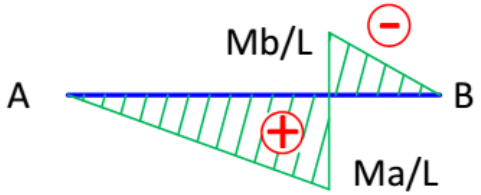


Diag. V

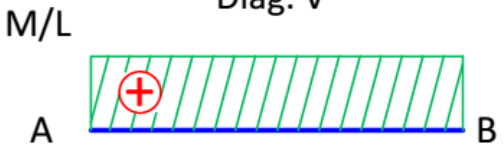




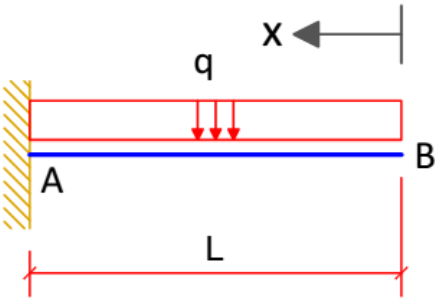
Diag. M

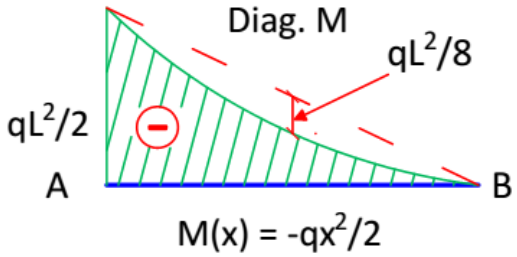


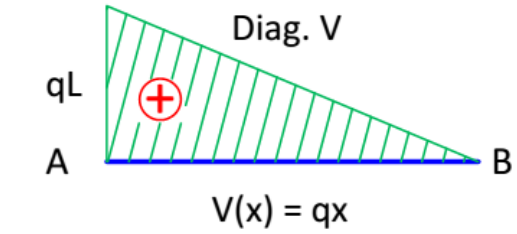
Diag. V

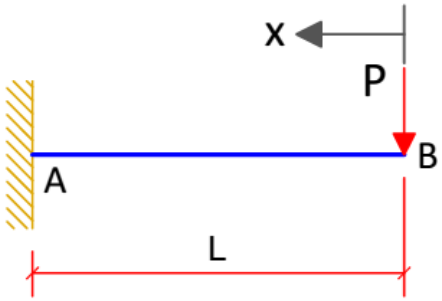


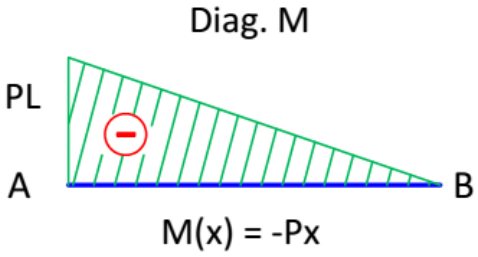
Vigas Engastadas Básicas

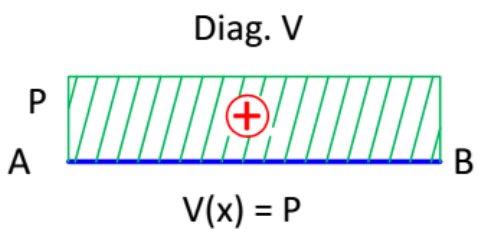


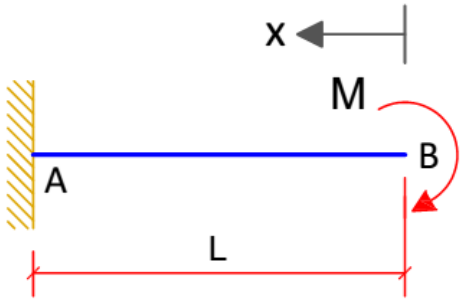


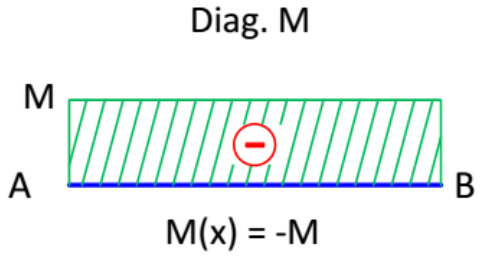


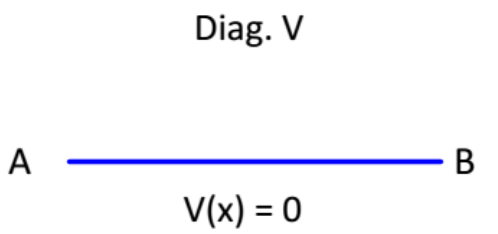








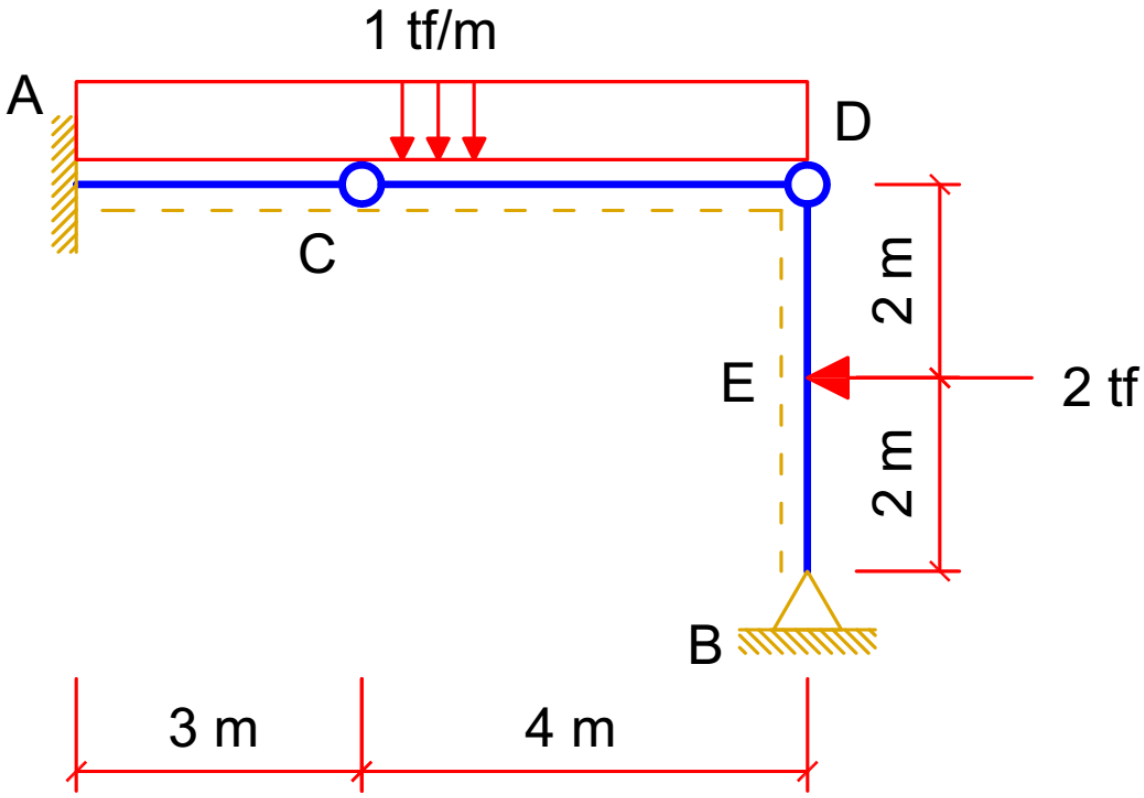




FIM

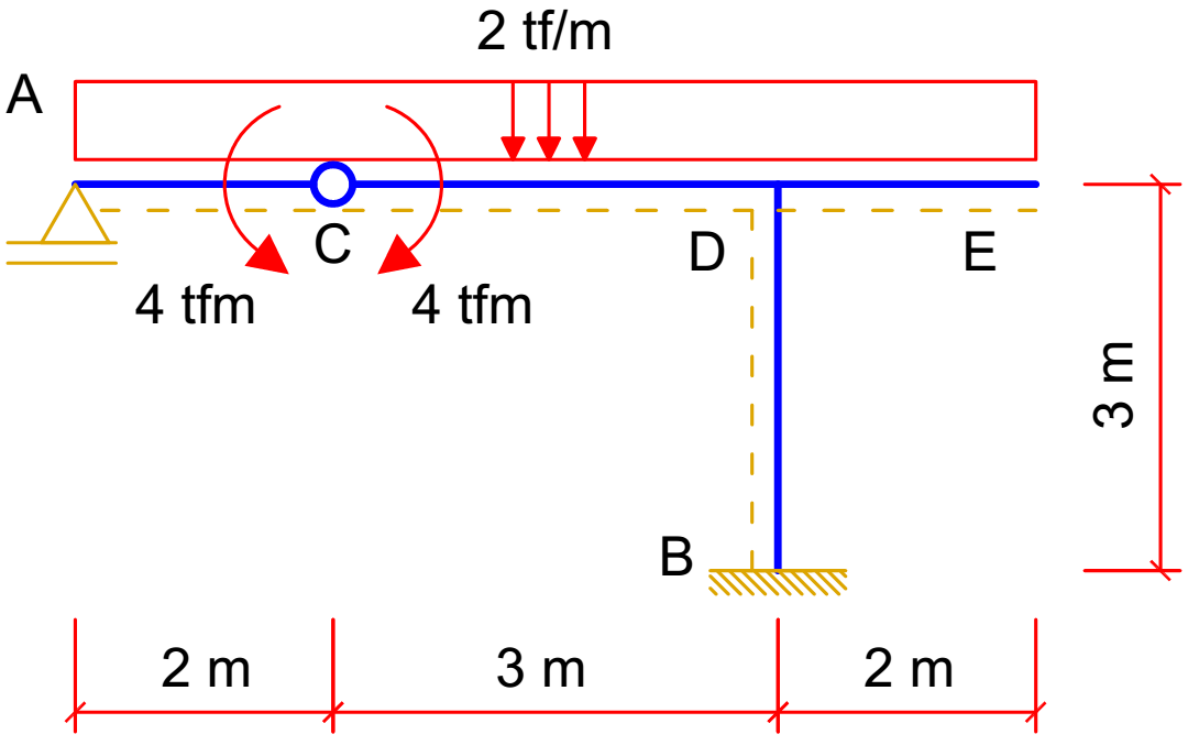
Exercício TE1-5.1

- Trace os diagramas de momento fletor e esforço normal para o pórtico abaixo:



Exercício TE1-5.2

- Trace os diagramas de momento fletor e esforço cortante para o pórtico abaixo:

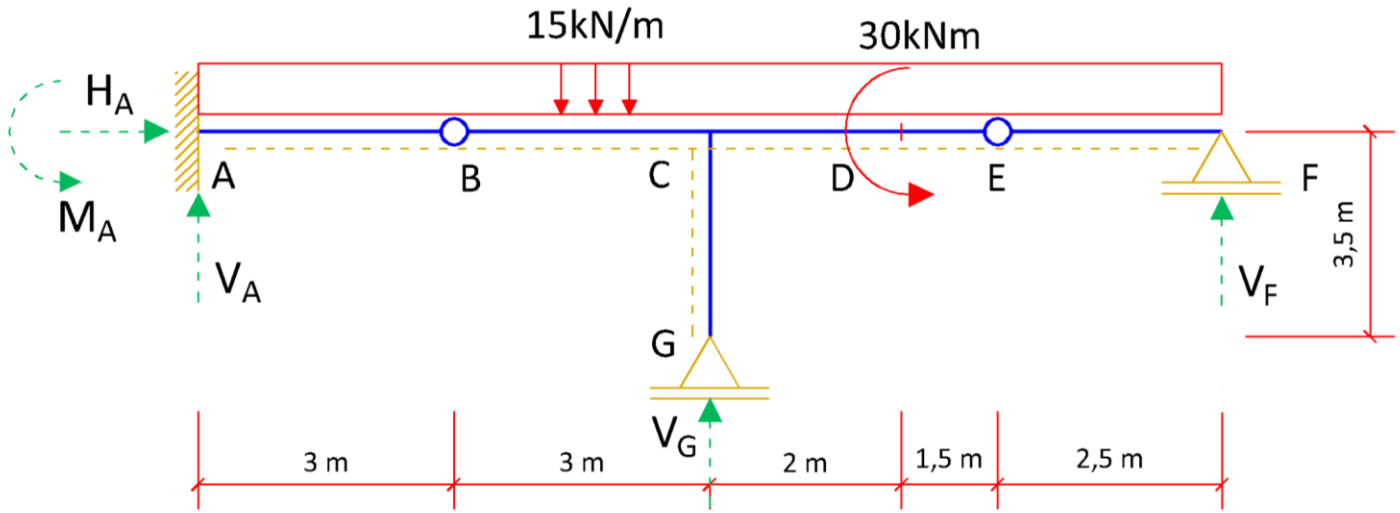


Exercício TE1-5.3

- Para o modelo estrutural abaixo determine:

  a) As ***reações de apoio (indicadas com setas tracejadas)***;
  b) A equação de momentos fletores para os ***trechos BC e DE***;
  c) A equação de esforços cortantes para os ***trechos BC e DE***;
  d) O ***traçado do diagrama de momentos fletores*** para todo o modelo estrutural.

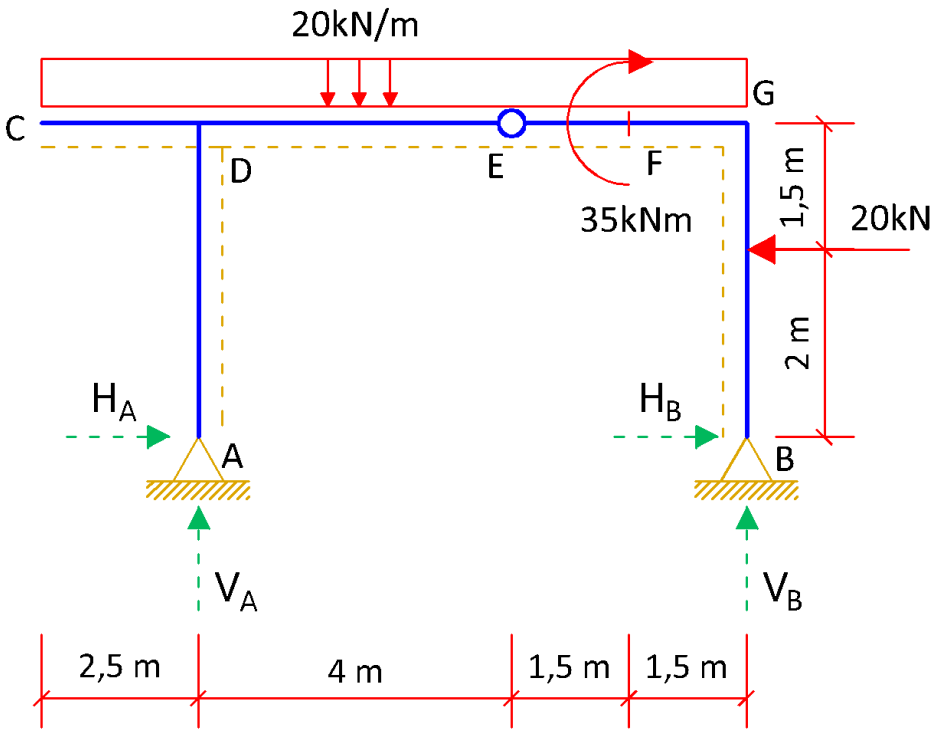
OBS: para as equações considerar a cada trecho de barra um novo sistema de eixos com o zero na esquerda e o sentido positivo orientado para a direita.



Exercício TE1-5.4

- Para o modelo estrutural ao lado determine:

  a) As ***reações de apoio (indicadas com setas tracejadas)*** ;
  b) A equação de momentos fletores para o ***trecho DE*** ;
  c) A equação de esforços cortantes para os ***trechos EF e FG***;
  d) O ***traçado do diagrama de esforços cortantes*** para todo o modelo estrutural;
  e) O ***traçado do diagrama de esforços normais (axiais)*** para todo o modelo estrutural.



OBS: para as equações considerar a cada trecho de barra um novo sistema de eixos com o zero na esquerda e o sentido positivo orientado para a direita.