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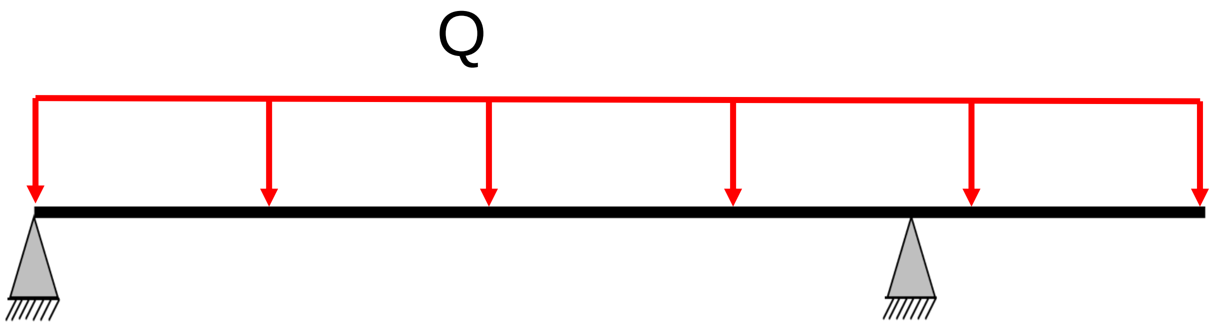
Teoría de Estructuras y Construcciones Industriales

Carlos Santiuste Romero, Sara Garzón Hernández, Liu Jiao Wang,

Manuel Cuadrado Sanguino, Luis Jiménez Girón, Daniel Herrero Adán

Teoremas de Mohr para desplazamientos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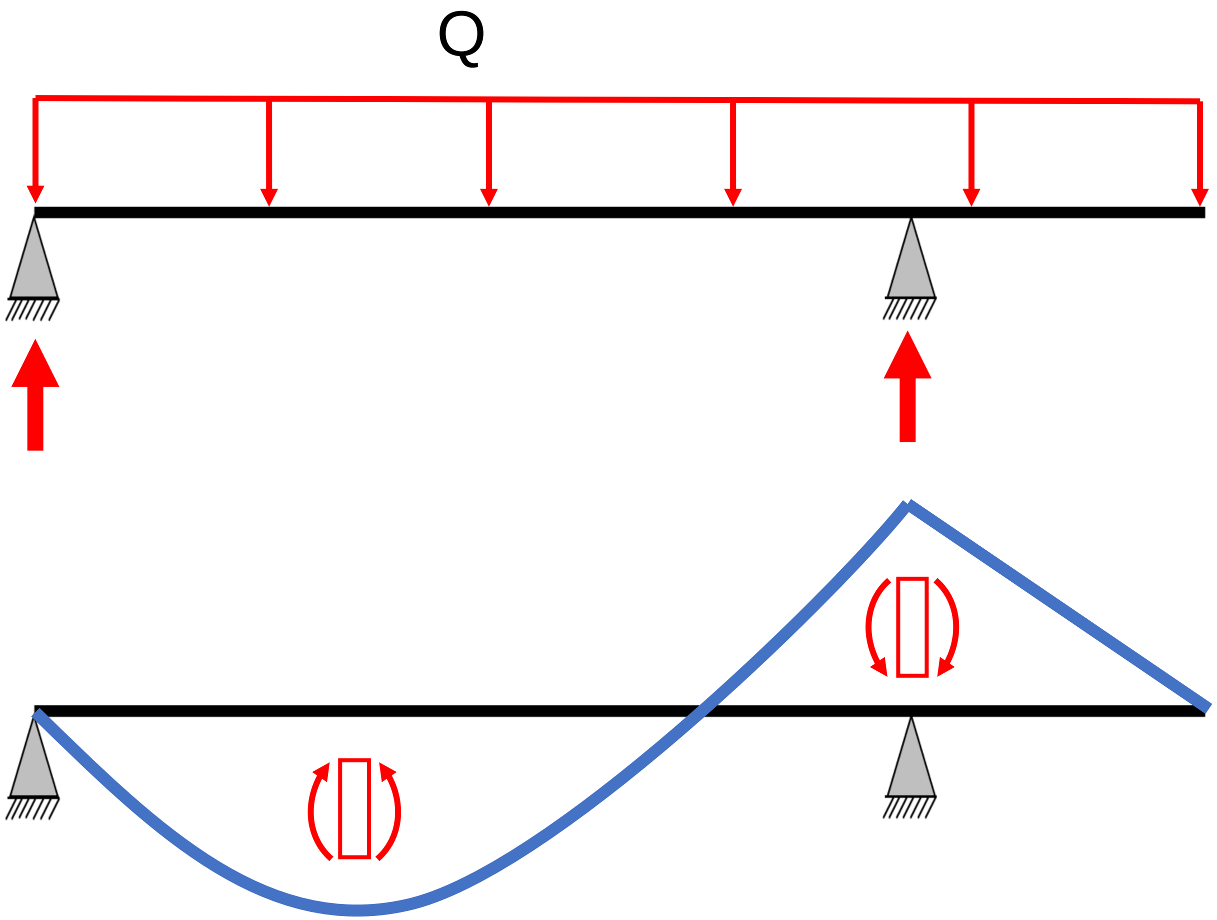
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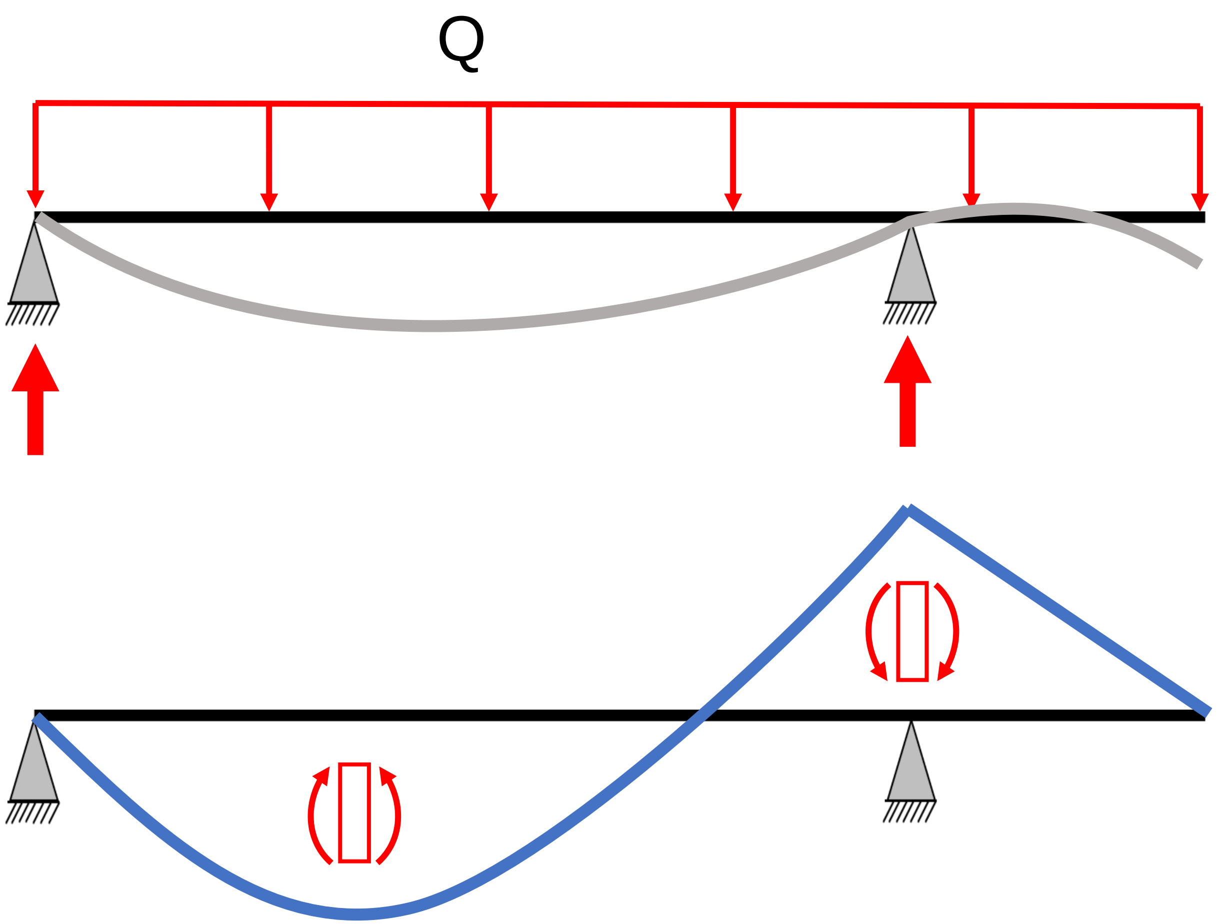
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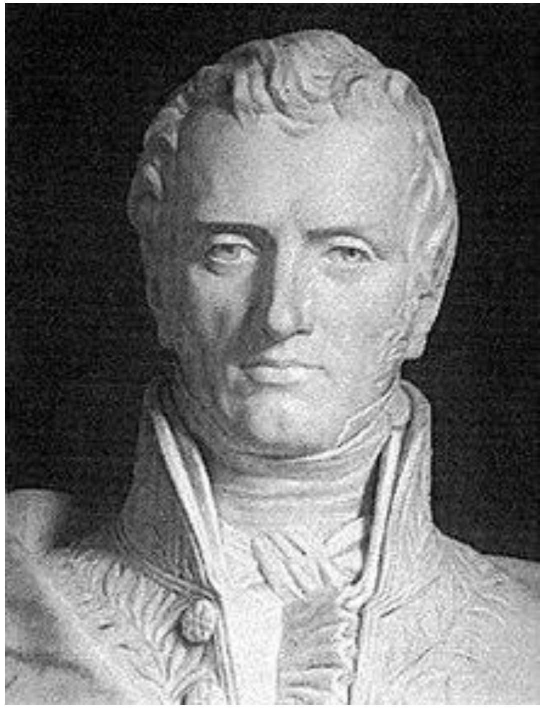
Ecuaciones de NAVIER-BRESSE

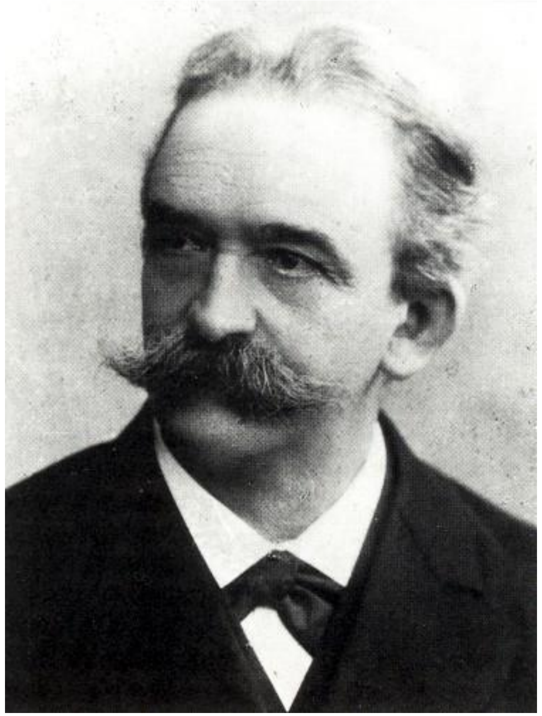
$$\theta_B = \theta_A + \int_A^B \frac{M}{EI} dx$$

$$v_B = v_A + \theta_A(x_B - x_A) + \int_A^B \frac{M}{EI}(x_B - x)dx$$



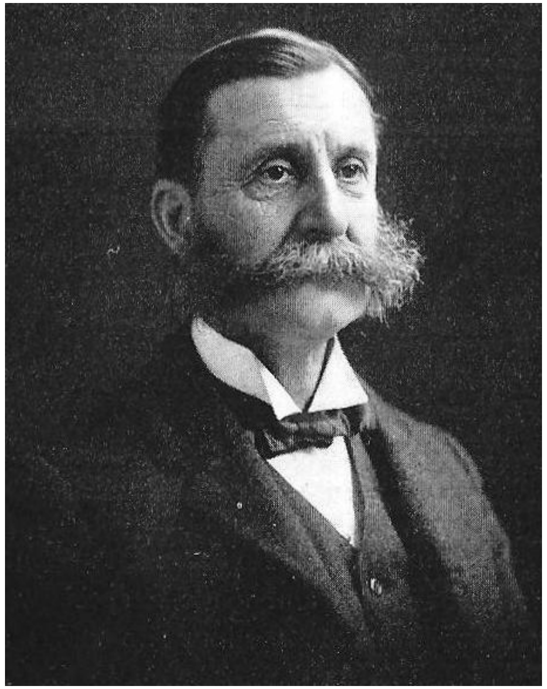
Christian Otto MOHR

1835-1918



Charles Ezra GREENE

1842-1903



Primer teorema de Mohr

Variaciones angulares

$$\theta_B = \theta_A + \int_A^B \frac{M}{EI} dx$$

$$\theta_{AB} = \theta_B - \theta_A = \int_A^B \frac{M_f(x)}{EI} dx$$

Primer teorema de Mohr

Variaciones angulares

$$\theta_B = \theta_A + \int_A^B \frac{M}{EI} dx$$

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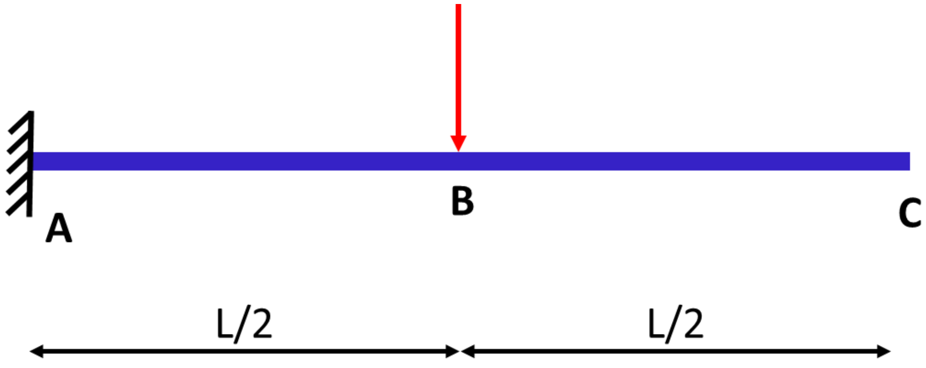
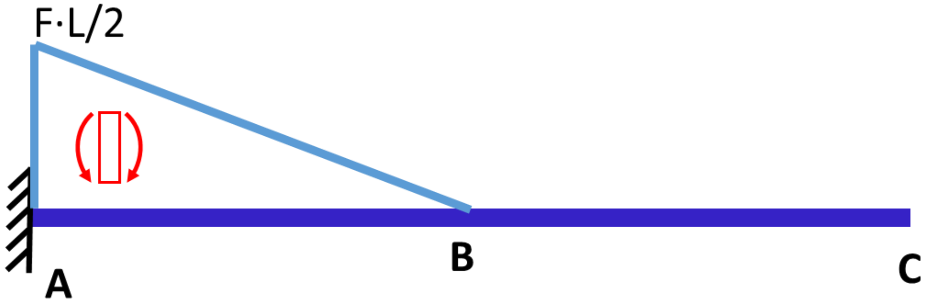
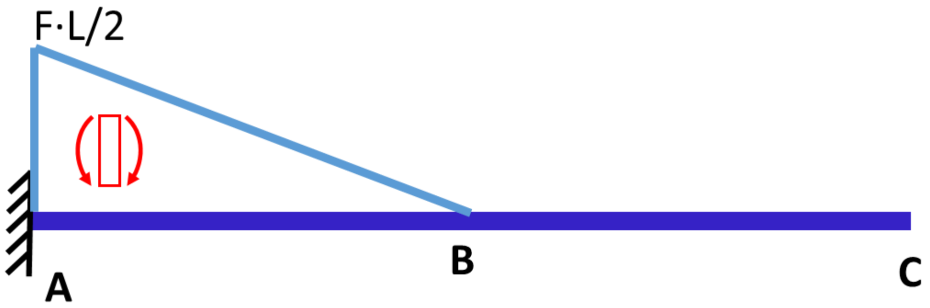




Primer teorema de Mohr
Variaciones angulares

$$\theta_{AB} = \theta_B - \theta_A = \int_A^B \frac{M_f(x)}{EI} dx$$

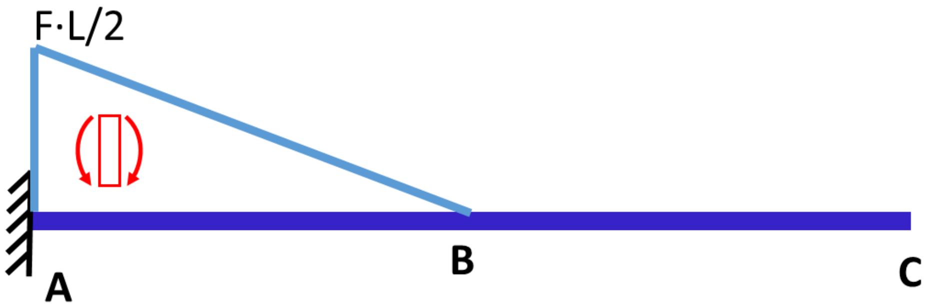


Primer teorema de Mohr

Variaciones angulares

$$\theta_{AB} = \theta_B - \theta_A = \int_A^B \frac{M_f(x)}{EI} dx$$

$$\theta_B = \frac{1}{EI} \int_A^B M_f(x) dx$$

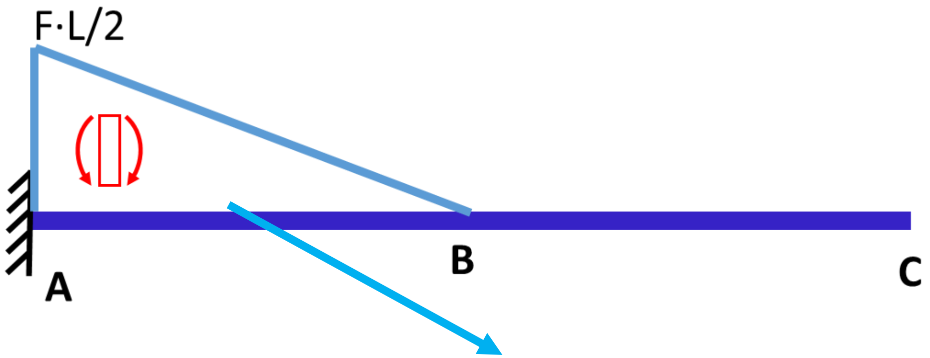


Primer teorema de Mohr

Variaciones angulares

$$\theta_{AB} = \theta_B - \theta_A = \int_A^B \frac{M_f(x)}{EI} dx$$

$$\theta_B = \frac{1}{EI} \int_A^B M_f(x) dx$$



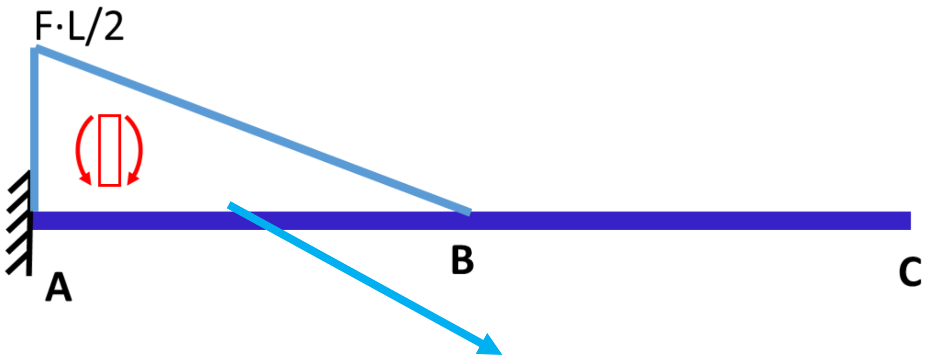
$$A = \frac{B \cdot h}{2} = \frac{F \cdot L \cdot L}{2 \cdot 2 \cdot 2} = \frac{F \cdot L^2}{8}$$

$$\theta_B = \frac{F \cdot L^2}{8 \cdot EI}$$

Primer teorema de Mohr
Variaciones angulares

$$\theta_{AB} = \theta_B - \theta_A = \int_A^B \frac{M_f(x)}{EI} dx$$

$$\theta_B = \frac{1}{EI} \int_A^B M_f(x) dx$$



$$A = \frac{B \cdot h}{2} = \frac{F \cdot L \cdot L}{2 \cdot 2 \cdot 2} = \frac{F \cdot L^2}{8}$$

$$\theta_B = \frac{F \cdot L^2}{8 \cdot EI} = \theta_C$$

Segundo teorema de Mohr

Flechas

$$v_B = v_A + \theta_A(x_B - x_A) + \int_A^B \frac{M}{EI}(x_B - x)dx$$

$$\Delta_{B\|A} = \int_A^B \frac{M_f(x)}{EI}(x_B - x)dx$$

Segundo teorema de Mohr

Flechas

$$v_B = v_A + \theta_A(x_B - x_A) + \int_A^B \frac{M}{EI}(x_B - x)dx$$

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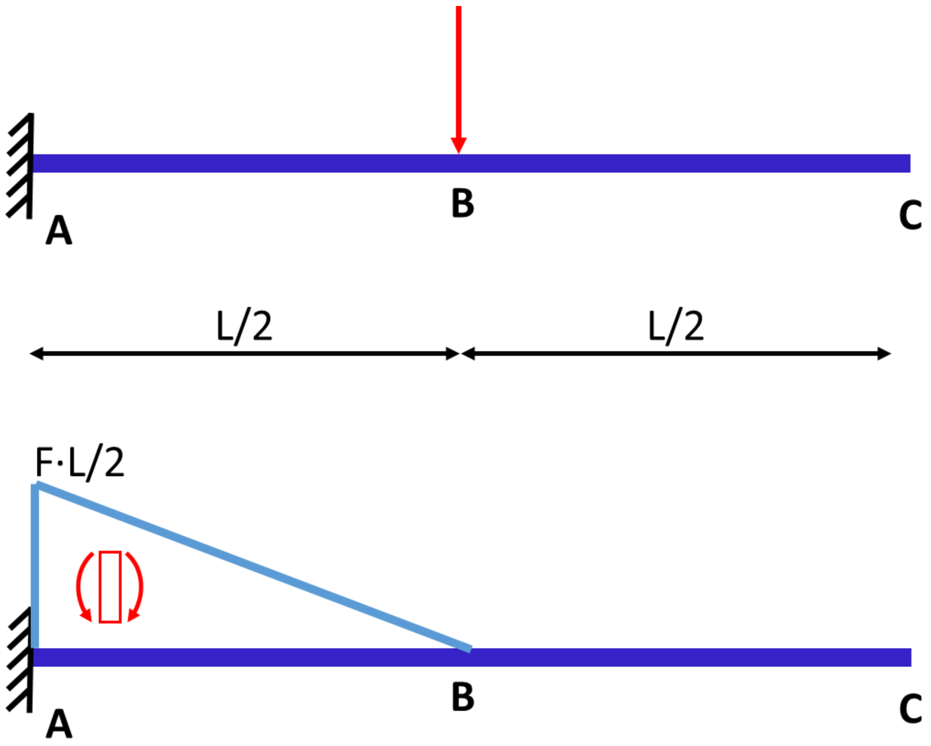
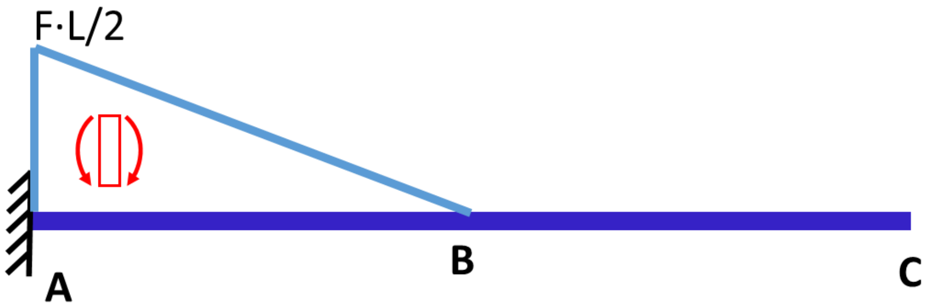


Segundo teorema de Mohr

Flechas

$$\Delta_{B\|A} = \int_A^B \frac{M_f(x)}{EI}(x_B - x)dx$$

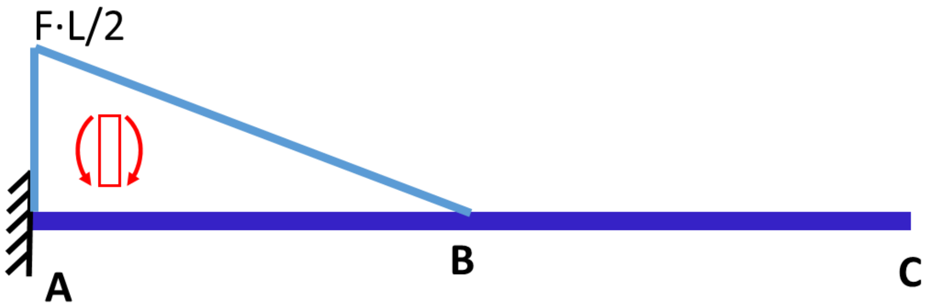


Segundo teorema de Mohr

Flechas

$$\Delta_{B\|A} = \int_A^B \frac{M_f(x)}{EI}(x_B - x)dx$$

$$v_B = \frac{1}{EI}\int_A^B M_f(x)(x_B - x)dx$$



Segundo teorema de Mohr

Flechas

$$\Delta_{B\|A} = \int_A^B \frac{M_f(x)}{EI}(x_B - x)dx$$

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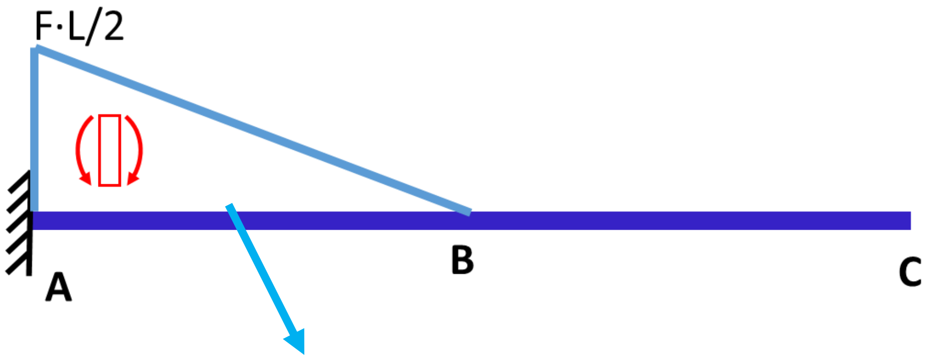


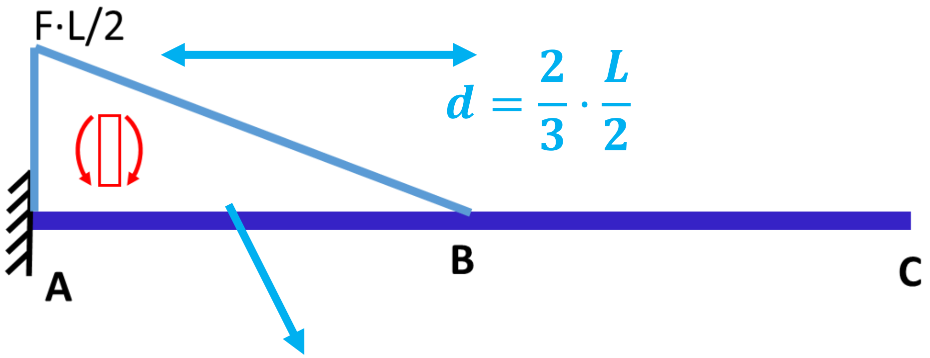
$$A = \frac{F \cdot L^2}{8}$$

Segundo teorema de Mohr

Flechas

$$\Delta_{B\|A} = \int_A^B \frac{M_f(x)}{EI}(x_B - x)dx$$

$$v_B = \frac{1}{EI}\int_A^B M_f(x)(x_B - x)dx$$



$$d = \frac{2}{3}\cdot\frac{L}{2}$$

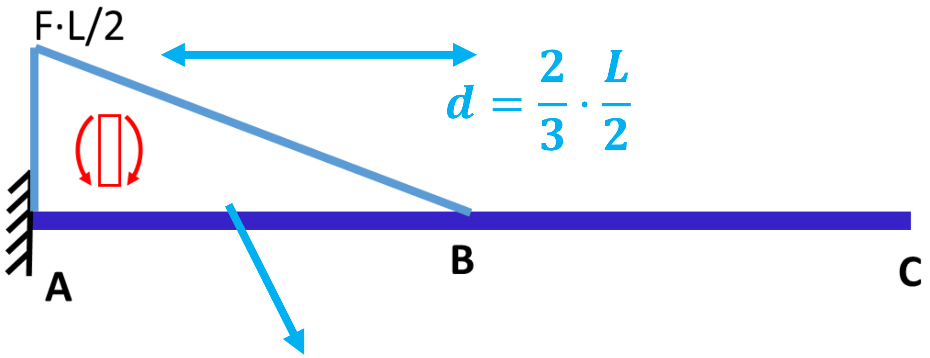
$$A = \frac{F\cdot L^2}{8}$$

Segundo teorema de Mohr

Flechas

$$\Delta_{B\|A} = \int_A^B \frac{M_f(x)}{EI}(x_B - x)dx$$

$$v_B = \frac{1}{EI}\int_A^B M_f(x)(x_B - x)dx$$



$$d = \frac{2}{3} \cdot \frac{L}{2}$$

$$A = \frac{F \cdot L^2}{8}$$

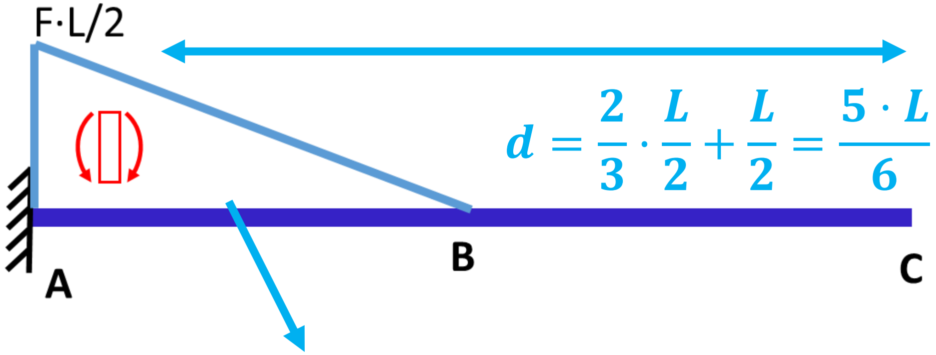
$$v_B = \frac{F \cdot L^3}{24 \cdot EI}$$

Segundo teorema de Mohr

Flechas

$$\Delta_{B\|A} = \int_A^B \frac{M_f(x)}{EI}(x_B - x)dx$$

$$v_B = \frac{1}{EI}\int_A^B M_f(x)(x_B - x)dx$$



$$\boldsymbol{d = \frac{2}{3}\cdot\frac{L}{2} + \frac{L}{2} = \frac{5\cdot L}{6}}$$

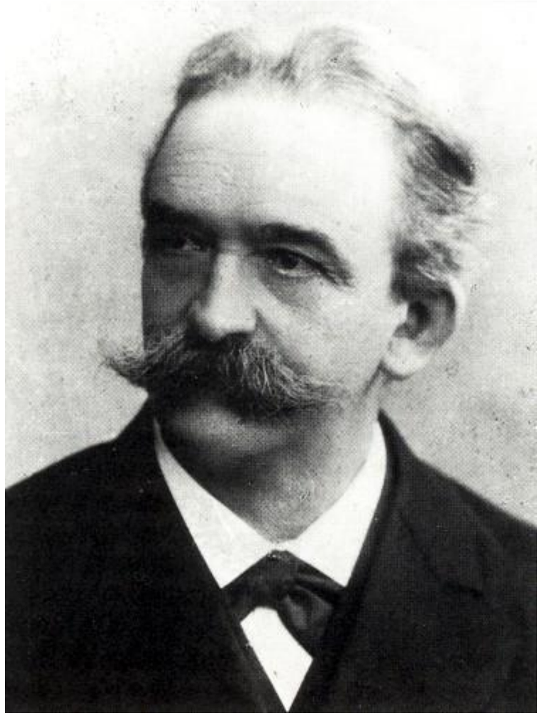
$$\boldsymbol{A = \frac{F\cdot L^2}{8}}$$

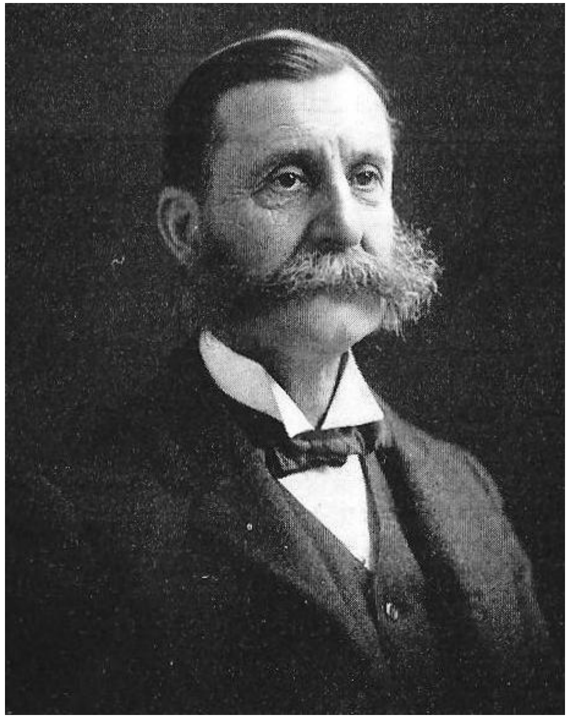
$$v_C = \frac{5\cdot F\cdot L^3}{48\cdot EI}$$

Teoremas de Mohr

$$\theta_{AB} = \theta_B - \theta_A = \int_A^B \frac{M_f(x)}{EI} dx$$

$$\Delta_{B\|A} = \int_A^B \frac{M_f(x)}{EI} (x_B - x) dx$$





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