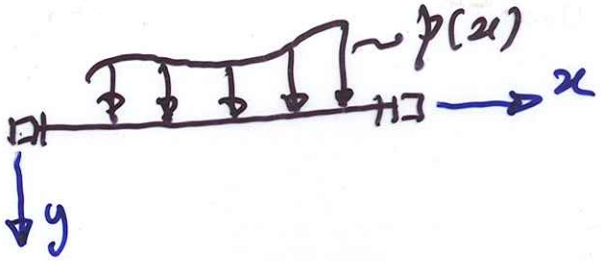
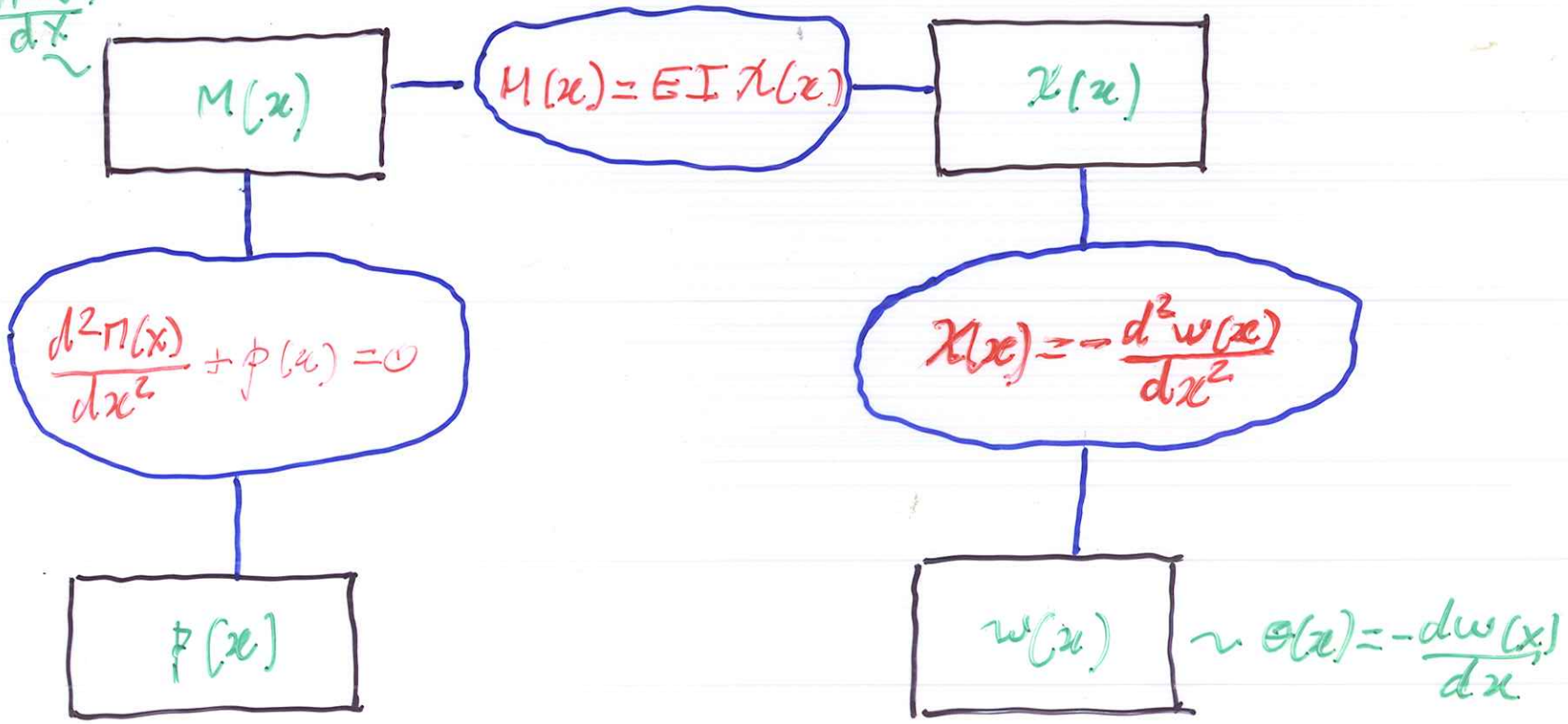
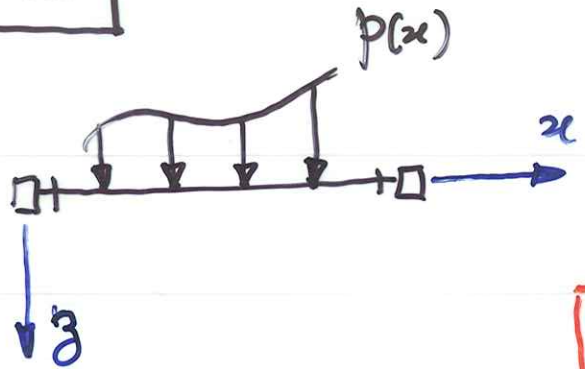
VIGAS



$V(x) = \frac{d\Pi(x)}{dx}$

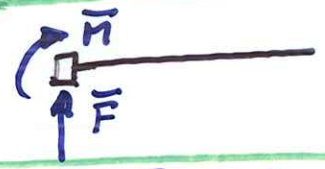


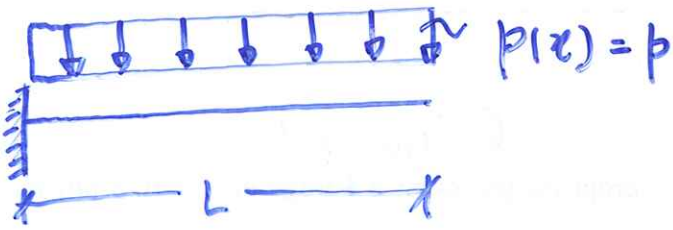
VIGAS



$$EI \frac{d^4 w(x)}{dx^4} = p(x)$$

+ CONDIÇÕES DE FRONTEIRA

		
$w(\ ) = 0$ $\theta(\ ) = 0$	$w(\ ) = 0$ $M(\ ) = \bar{M}$ (E)	$V(\ ) = \bar{F}$ (E) $M(\ ) = \bar{M}$ (E)
$w(\ ) = 0$ $-\frac{dw}{dx}(\ ) = 0$	$w(\ ) = 0$ $-EI \frac{d^2w}{dx^2}(\ ) = \bar{M}$	$-EI \frac{d^3w}{dx^3}(\ ) = \bar{F}$ $-EI \frac{d^2w}{dx^2}(\ ) = \bar{M}$
ENCASTRAMENTO	APOIO FIXO / MÓVEL	NÓ LIVRE



$$w(x) = \frac{p}{EI}\left[\frac{x^4}{24} - \frac{Lx^3}{6} + \frac{L^2x^2}{4}\right]$$

$$\frac{dw}{dx} = \frac{p}{EI}\left[\frac{x^3}{6} - \frac{Lx^2}{2} + \frac{L^2}{2}x\right]$$

$$\frac{d^2w}{dx^2} = \frac{p}{EI}\left[\frac{x^2}{2} - Lx + \frac{L^2}{2}\right]$$

$$\frac{d^3w}{dx^3} = \frac{p}{EI}\left[x - L\right]$$

$$\frac{d^4w}{dx^4} = \frac{p}{EI}$$

$$w(x) = \frac{1}{6EI}\left[\frac{x^5}{20L} - \left(\frac{L^2+6}{6L}\right)x^3 + \left(\frac{7L^3+60L}{60}\right)x\right]$$

$$w'(x) = \frac{1}{6EI}\left[\frac{5x^4}{20L} - 3\left(\frac{L^2+6}{6L}\right)x^2 + \left[\frac{7L^3+60L}{60}\right)\right]$$

$$w''(x) = \frac{1}{6EI}\left[\frac{20x^3}{20L} - 6\left(\frac{L^2+6}{6L}\right)x\right]$$

$$w'''(x) = \frac{1}{6EI}\left[\frac{3x^2}{L} - \frac{L^2+6}{L}\right]$$

$$w^{IV}(x) = \frac{1}{6EI}\left[\frac{6x}{L}\right] = \frac{1}{EI}\left[\frac{x}{L}\right]$$