Formulario para el 1er Examen Parcial de Ecuaciones Diferenciales

$$si\ \frac{M_y - N_x}{N} = p(x) \Rightarrow \mu(x) = e^{\int p(x)dx}$$
$$si\ \frac{N_x - M_y}{M} = p(y) \Rightarrow \mu(y) = e^{\int p(y)dy}$$

$$y' + P(x)y = h(x)$$
$$\mu(x) = e^{\int P(x)dx}$$
$$y = \frac{1}{\mu}\left[\int \mu \cdot h \cdot dx + c\right]$$

$$v = \frac{y}{x} \Rightarrow y = vx \Rightarrow \frac{dy}{dx} = v + x\frac{dv}{dx}$$
$$u = \frac{x}{y} \Rightarrow x = uy \Rightarrow \frac{dx}{dy} = u + y\frac{du}{dy}$$

$$x' + P(y)x = h(y)$$
$$\mu(y) = e^{\int P(y)dy}$$
$$x = \frac{1}{\mu}\left[\int \mu \cdot h \cdot dy + c\right]$$

$$\int \frac{1}{u^2 + a^2}du = \frac{1}{a}\tan^{-1}\left(\frac{u}{a}\right); \int \ln u \cdot du = u \cdot \ln u - u$$
$$\int e^{ax}dx = \frac{1}{a}e^{ax}; \int \cos ax \cdot dx = \frac{1}{a}senax; \int senax \cdot dx = -\frac{1}{a}\cos ax$$
$$\int u \cdot dv = uv - \int v \cdot du$$
$$sen^2 x + \cos^2 x = 1 \quad ; \quad \tan^{-1}\left(\frac{1}{\theta}\right) = -\tan^{-1}(\theta)$$
$$sen^2 x = (1 - \cos 2x)/2 \quad ; \quad sen2x = 2senx\cos x$$
$$\cos^2 x = (1 + \cos 2x)/2 \quad ; \quad \cos 2x = \cos^2 x - sen^2 x$$