§7.3

#1) $\frac{dy}{dx} = \frac{y}{x}$

$\Rightarrow \frac{1}{y}dy = \frac{1}{x}dx$

$\Rightarrow \int \frac{1}{y}dy = \int \frac{1}{x}dx$

$\Rightarrow \ln|y| = \ln|x| + C$

$\Rightarrow y = \pm e^{\ln|x|+C} = C'x \quad ; \quad C' = \pm e^{C}$

#15) $\frac{dy}{dx} = 4x^3y$

$\Rightarrow \frac{1}{y}dy = 4x^3dx$

$\Rightarrow \int \frac{1}{y}dy = 4\int x^3dx$

$\Rightarrow \ln|y| = x^4 + C$

$\Rightarrow y = C'e^{x^4}$

At $x=0$, $y=7 \Rightarrow C' = 7$

$\therefore y = 7e^{x^4}$ is the desired solution.