(27) Encontrar la solución particular explicita.

$$\frac{dy}{dx} = 6e^{2x-y}, \quad y(0) = 0$$

$$\frac{dy}{dx} = 6e^{2x} \cdot e^{-y}$$

$$dy \frac{1}{e^{-y}} = 6e^{2x}\,dx \qquad w = 2x$$

$$dy\, e^{y} = 6e^{2x}\,dx \qquad dw = 2dx$$

$$\qquad \frac{1}{2}dw = dx$$

$$\int e^{y}\,dy = \int 6e^{2x}\,dx$$

$$e^{y} = 6\int e^{2x}\,dx$$

$$e^{y} = 6\int e^{w}\left(\frac{1}{2}dw\right)$$

$$e^{y} = 6\left(\frac{1}{2}\right)\int e^{w}\,dw$$

$$e^{y} = 3\int e^{w}\,dw$$

$$e^{y} = 3e^{w} \rightarrow e^{y} = 3e^{2x} + c$$

$$\ln e^{y} = 3e^{2x} + c$$

$$y = \ln(3e^{2x} + c) \, *$$

$$0 = \ln(3e^{0} + c)$$

$$0 = \ln(3+c) \rightarrow e^{0} = e^{\ln(3+c)}$$

$$e^{0} = 3 + c \rightarrow 1 = 3 + c \rightarrow \boxed{-2 = c}$$

(27) $y = \ln(3e^{2x} - 2)$

(28) $2\sqrt{x}\,\frac{dy}{dx} = \cos^2 y,\ y(4) = \pi/4$

$$\frac{dy}{\cos^2 y} = \frac{dx}{2\sqrt{x}}$$

$$\int \sec^2 y\, dy = \frac{1}{2}\int \frac{dx}{\sqrt{x}}$$

$$\tan y + c = \frac{1}{2}\int x^{-1/2}\, dx$$

$$\tan y + c_1 = \frac{1}{\cancel{2}}\,\frac{x^{1/2}}{\cancel{1}/2} + c_2$$

$$\tan y + c_1 = \sqrt{x} + c_2$$

$$\tan y = \sqrt{x} + C$$

$$y = \tan^{-1}(\sqrt{x} + c)$$

$$\frac{\pi}{4} = \tan^{-1}(2 + c)$$

$$\tan\frac{\pi}{4} = 2 + c$$

$$1 = 2 + c$$

$$1 - 2 = c \rightarrow \boxed{-1 = c}$$

$$y = \tan^{-1}(\sqrt{x} - 1)$$