

$$1. a) F(x) = \frac{1}{3} \cdot \frac{(3x+9)^6}{6} + C = \frac{(3x+9)^6}{18} + C$$

$$b) F(x) = \frac{4}{3} \cdot e^{3x} - 10 e^{x \ln 0.6} \cdot \frac{1}{\ln 0.6} + C = \frac{4}{3} e^{3x} - \frac{10}{\ln 0.6} \cdot 0.6^x + C$$

$$2. 3 \operatorname{tg} x + 4x + C = F(x)$$

$$F\left(\frac{\pi}{4}\right) = \pi$$

$$3 \operatorname{tg} \frac{\pi}{4} + \pi + C = \pi$$

$$C = -3$$

$$F(x) = 3 \operatorname{tg} x + 4x - 3$$

$$3. a) \int_{-2}^2 (-4x + 4) dx = -2x^2 + 4x \Big|_{-2}^2 = -8 + 8 + 8 + 8 = 16$$

$$b) \int_{\pi/2}^{3\pi/2} \sin \frac{x}{2} dx = -2 \cos \frac{x}{2} \Big|_{\pi/2}^{3\pi/2} = -2 \cos \frac{3\pi}{4} + 2 \cos \frac{\pi}{4} =$$

$$= 2 \cdot \frac{\sqrt{2}}{2} + 2 \cdot \frac{\sqrt{2}}{2} = 2\sqrt{2}$$