

Name: _____

Find:

$$\begin{aligned} \text{a) } & \int \left(\frac{3}{x^2} + \sqrt{x} \right) dx \\ &= \int (3x^{-2} + x^{1/2}) dx \\ &= -3x^{-1} + \frac{2}{3}x^{3/2} + C \end{aligned}$$

$$\text{b) } \int \frac{x dx}{\sqrt{4x^2+1}}$$

$$\begin{aligned} &= \frac{1}{8} \int \frac{du}{\sqrt{u}} \\ &= \frac{1}{8} \int u^{-1/2} du \\ &= \frac{1}{8} (2u^{1/2}) + C \\ &= \frac{\sqrt{4x^2+1}}{4} + C \end{aligned}$$

$$\begin{aligned} u &= 4x^2+1 \\ du &= 8x dx \\ \frac{du}{8} &= x dx \end{aligned}$$