

$$2. \frac{t}{\cos(5t)} \quad u^4 \rightarrow 4u^3$$

$$\frac{d}{dt} \frac{f(t)}{g(t)} = \frac{-f(t) \frac{d}{dt} g(t) + g(t) \frac{d}{dt} f(t)}{g^2(t)}$$

$$f(t) = t$$

$$u = 5t$$

$$g(t) = \cos(5t)$$

$$\frac{d}{du} \cos(u) = -\sin(u) = -5 \sin(5t)$$

$$\frac{5t \sin(5t) + \cos(5t)}{\cos^2(5t)} = \frac{4t^3(5t \sin(5t) + \cos(5t))}{(\cos^5(5t))}$$

$$3. \int \left(\frac{1}{b^5} + \sqrt{b} \right) db = ?$$

$$\int \frac{1}{5b} + \sqrt{b} db$$

$$\int \frac{1}{5b} db + \int \sqrt{b} db$$

$$\frac{1}{5} \left\{ \int \frac{1}{b} db + \int \sqrt{b} db \right\}$$

$$\frac{1}{5} (\ln(|b|) + C) + \int \sqrt{b} db$$

$$\sqrt[n]{a^x} = a^{\frac{x}{n}} \rightarrow \sqrt{b} = b^{\frac{1}{2}}$$

$$\frac{1}{5} (\ln(|b|) + C) + \int b^{\frac{1}{2}} db$$

$$b^{\frac{1}{2}} = \frac{2}{3} b^{\frac{3}{2}}$$

$$\frac{1}{5} (\ln(|b|) + C) + \frac{2}{3} b^{\frac{3}{2}} + C$$

$$\underline{\underline{\frac{1}{5} \ln(|b|) + \frac{2}{3} b^{\frac{3}{2}} + C}}$$

$$4. \int -7\sqrt{x} dx$$

$$\int \frac{1}{7x} - \sqrt{x} dx$$

$$\int \frac{1}{7x} dx + \int \sqrt{x} dx$$

$$\frac{1}{5} (\ln(|b|) + C) + \int \sqrt{b} db$$

$$\sqrt[n]{a^x} = a^{\frac{x}{n}} \rightarrow \sqrt{b} = b^{\frac{1}{2}}$$

$$\frac{1}{5} (\ln(|b|) + C) + \int b^{\frac{1}{2}} db$$

$$b^{\frac{1}{2}} = \frac{2}{3} b^{\frac{3}{2}}$$

$$\frac{1}{5} (\ln(|b|) + C) + \frac{2}{3} b^{\frac{3}{2}} + C$$

$$-\frac{19}{3} x^{\frac{3}{2}} + C$$