

$$D) \int 5 \sin(x) \cos(x) dx$$

$$= 5 \int \sin(x) \cos(x) dx$$

$$= 5 \frac{u^{1+1}}{1+1}$$

$$= 5 \frac{\sin^{1+1}(x)}{1+1}$$

$$= \frac{5}{2} \sin^2(x)$$

$$= \frac{5}{2} \sin^2(x)$$

$$= \frac{5}{2} \sin^2(x) + C$$

$$\underline{\underline{\frac{5}{2} \sin^2(x) + C}}$$

$$e) \int 3x^2 \sqrt{x^3} dx \quad u = x^3$$

$$= 3 \cdot \int \frac{\sqrt{u}}{3} du$$

$$= 3 \cdot \frac{1}{3} \cdot \int \sqrt{u} du$$

$$= 3 \cdot \frac{1}{3} \cdot \int u^{\frac{1}{2}} du$$

$$= 3 \cdot \frac{1}{3} \cdot \frac{(x^3)^{\frac{1}{2}+1}}{\frac{1}{2}+1} = \frac{2}{3} x^{\frac{3}{2}}$$

$$= \frac{2}{3} x^{\frac{3}{2}}$$

$$= \frac{2}{3} x^{\frac{3}{2}} + C$$

$$\underline{\underline{\frac{2}{3} x^{\frac{3}{2}} + C}}$$