Rewrite each definite integral in terms of u and du	1. $\displaystyle\int_{x=0}^{x=1}(5x+4)^5\,dx$ Let $\boxed{u=5x+4}$ $u(0)=4$ $u(1)=9$ $\dfrac{du}{dx}=5$ $du=5\,dx$ $\dfrac{du}{5}=dx$ $\displaystyle\int_4^9 u^5\,dx$ $\displaystyle\int_4^9 u^5\,\frac{du}{5}=\boxed{\frac{1}{5}\int_4^9 u^5\,du}$ 2. $\displaystyle\int_0^2 3x^2(x^3+4)^5\,dx$ Let $\boxed{u=x^3+4}$ $u(0)=4$ $u(2)=12$ $\dfrac{du}{dx}=3x^2$ $\displaystyle\int_4^{12} 3x^2(u)^5\,dx$ $\displaystyle\int_4^{12}\frac{du}{\cancel{dx}}(u^5)\cancel{dx}=\int_4^{12}u^5\,du=\frac{1}{6}u^6\Big]_4^{12}$

	3. $\int_1^3 \cos(2x+1)\,dx$ Let $u = 2x+1$ $\longrightarrow$ $\frac{du}{dx} = 2$ $\frac{du}{2} = dx$ $\int_3^7 \cos(u)\,dx$ $\int_3^7 \cos(u)\frac{du}{2} = \frac{1}{2}\int_3^7 \cos u\,du$
① Change upper/lower limit ② Substitute what you know ③ Take the derivative of u ④ solve $\frac{du}{dx}$ for dx ⑤ Substitute in for dx	4. $\int_0^{\pi/4} \frac{\sin x}{(\cos x)^5}\,dx$ Let $u = \cos x$ $\frac{du}{dx} = -\sin x$ $\frac{du}{-\sin x} = dx$ $\int_1^{\sqrt{2}/2} \frac{\sin x}{u^5}\,dx$ $\int_1^{\sqrt{2}/2} \frac{\sin x}{u^5}\cdot\frac{du}{-\sin x} = \int_1^{\sqrt{2}/2} \frac{-1}{u^5}\,du = \boxed{\int_1^{\sqrt{2}/2} -u^{-5}\,du}$