u-Sub lesson & cw.

Differentiate:

$f(x)=e^{2x}\cdot\ln x$

$f(x)=\ln\left(x\sqrt{x^2+1}\right)$

$f(x)=e^{5/x^2}$

$f(x)=\ln(\ln x)$

Integrate:

$\int\frac{x+1}{x^2+2x}dx$

$\int_{-1}^{1}\frac{1}{x+2}dx$

$\int\sqrt[3]{x^5}dx$

$\int_{0}^{2}x^2e^{-x^3}dx$

$\int\frac{x^3-2x}{\sqrt{x}}dx$

$\int\frac{1}{x^7}dx$

$\int\frac{e^x}{1+2e^x}dx$

$\int\frac{(\ln x)^4}{x}dx$

$\int_{-3}^{1}|x+2|dx$

Integrate

1 $\int x^3(2x^4+5)^3\,dx$

2 $\int \frac{5}{x^5}\,dx$

3 $\int \frac{x}{\sqrt{9-x^2}}\,dx$

4 $\int \frac{(\ln x)^3}{x}\,dx$

5 $\int \frac{x^4-3x^3+2}{x}\,dx$

6. $\int \sqrt{x^5}\,dx$

7 $\int_0^2 x(x^2+1)^3\,dx$

8. $\int_0^{\frac{\pi}{8}} \sin^5 2x\cos 2x\,dx$

Express each definite integral in terms of u, but do not evaluate.

1) $\int_{-1}^{0} \frac{8x}{(4x^2+1)^2}\,dx;\ u=4x^2+1$

2) $\int_0^1 -12x^2(4x^3-1)^3\,dx;\ u=4x^3-1$

3) $\int_{-1}^{2} 6x(x^2-1)^2\,dx;\ u=x^2-1$

4) $\int_0^1 \frac{24x}{(4x^2+4)^2}\,dx;\ u=4x^2+4$