Homework 24

Use integration techniques that you've learned so far to find each of the following integrals and antiderivatives.

1. $\displaystyle\int_{-1}^{3} x \sin(x^2 + 2)\, dx$

2. $\displaystyle\int_{2}^{4} x^2 \sqrt{x+2}\, dx$

3. $\displaystyle\int_{2}^{4} \frac{x^2 + 2x}{x}\, dx$

4. $\displaystyle\int_{0}^{1} x(x^2 + 2)^5\, dx$

5. $\displaystyle\int_{-1}^{1} x^2(x+1)^4\, dx$

6. $\displaystyle\int_{0}^{5} \frac{\ln(x+1)}{x+1}\, dx$

7. $\displaystyle\int \sec x\, dx$ (Hint: Make into a fraction and then multiply top and bottom by $\sec x + \tan x$.)

8. $\displaystyle\int_{0}^{\frac{\sqrt{\pi}}{2}} x \tan\left(2x^2 - \frac{\pi}{3}\right) dx$

9. $\displaystyle\int \frac{3x}{\sqrt{x^2 + 5}}\, dx$