Math 131 Homework: Day 9

☞ Practice and Reading

1. a) Reread and review Section 5.4 on substitution, which we will finish next class.

   b) ✍ Practice substitution while things are still relatively simple! Page 363ff #9–23 odd, 27.

Hand In Wednesday (Also **WeBWorK** Set Day09 Due Thursday)

Use this sheet. Be neat so that I can grade these quickly and get them back to you in Lab. Put a box around your answers so I can find them. Clearly note any substitution.

1. Determine $\displaystyle\int 3x^2(x^3 + 9)^{-5}\,dx$.

2. Determine $\displaystyle\int \cos x\sqrt{4 + 2\sin x}\,dx$.

3. Determine $\displaystyle\int \frac{(\ln t)^3}{t}\,dt$.

4. Determine $\displaystyle\int (x + 2)\sin(x^2 + 4x)\,dx$.

5. Determine $\displaystyle\int \frac{x^5}{1+4x^6}\,dx$.

6. Fill in the blank with a function that makes this an easy problem to do and then solve it. $\displaystyle\int e^{x+\tan x}(\underline{})\,dx$.

7. Practice: Starting Integration Problems. Sometimes starting a problem is the hardest thing. Decide which method is appropriate for each: basic rules, algebraic simplification, "mental adjustment," still others require u-substitution. Complete the table. **You do not actually have to do the antidifferentiation.**

Integral	Method	If u-sub, then $u =$? and $du =$?
$\displaystyle\int (3x+2)(6x^2+8x)^5\,dx$		
$\displaystyle\int (3x+2)(6x+8)\,dx$		
$\displaystyle\int \frac{1}{5\sqrt[4]{x^3}}\,dx$		
$\displaystyle\int \sec^2(3x)\,dx$		
$\displaystyle\int \sin(\cos x)\sin x\,dx$		
$\displaystyle\int \frac{4}{1+x^2}\,dx$		
$\displaystyle\int \frac{4x}{1+x^2}\,dx$		
$\displaystyle\int \frac{1+x^2}{x}\,dx$		
$\displaystyle\int \frac{t}{\sqrt{1-t^2}}\,dt$		
$\displaystyle\int \frac{1}{\sqrt{1-t^2}}\,dt$		