Math 131 Homework: Day 10

♨ Practice

1. a) Read Section 6.1 on velocity and displacement and net change in general. Review Section 5.5 on Substitution. Review the **notes on substitution on line**. There are lots of examples.

  b) ☞ **Practice:** You gotta' practice a lot of substitution problems to get comfortable with them. Previously assigned: Page 363ff #9–23 odd, 27. New problems: Page 363ff #25, 29 and 31 (these last two are very good). Some definite integrals: #35, 39, 41, 59, 63, 65 and 67. Review exercises: Page 367 #21, 25, and 27. **See the practice on the back.**

WeBWorK: Set Day10 due Sunday evening. Start early (long set). WeBWorK set Day09 due Thursday at noon.

Lab Ticket: Hand in at Lab on Thursday. Name: _____

Use this sheet. **Be very neat so that I can grade them quickly and get them back to you in Lab.**

1. Determine $\displaystyle\int \frac{\sqrt{\ln t}}{t}\, dt$.

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

3. Determine $\displaystyle\int \frac{x^2}{1+4x^6}\, dx$

4. Hint: See today's online notes page 11. Determine $\displaystyle\int_0^4 x\sqrt{2x+1}\, dx$.

Practice: Starting Integration Problems

By the end of the day, you will be able to do each of these integrals. Some are simple, others require 'adjusting', still others require u-substitution which gets progressively more complicated. Similar looking problems can have very different answers.

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