My Office Hours: M & W 2:30–4:00, Tu 2:00–3:30, & F 1:30–2:30 or by appointment. **Math Intern:** Sun: 2:00–5:00, 7:00–10pm; Mon thru Thu: 3:00–5:30 and 7:00–10:30pm in Lansing 310. Website: `http://math.hws.edu/~mitchell/Math131F15/index.html`.

☕ *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: P. 391 #9–23 odd, 27. New problems: P. 391ff #25, 28 and 33 (these last two are very good). Some definite integrals: #35, 39, 41, 59, 63, 65 and 67. Review exercises: P. 395 #25, 29, and 37.

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 $du =$?**
$\int (3x+2)(6x^2+8x)^5\,dx$		
$\int \frac{1}{5\sqrt[4]{x^3}}\,dx$		
$\int \sec^2(3x)\,dx$		
$\int \sec(3x)\,dx$		
$\int \sin(\cos x)\sin x\,dx$		
$\int \frac{\ln x}{x}\,dx$		
$\int \frac{2}{x\ln x}\,dx$		
$\int \frac{4}{1+x^2}\,dx$		
$\int \frac{4x}{1+x^2}\,dx$		
$\int \frac{1}{1+4x^2}\,dx$		
$\int \frac{1+x^2}{4x}\,dx$		
$\int \sqrt{4t-1}\,dt$		
$\int \frac{t}{\sqrt{1-4t^2}}\,dt$		
$\int \frac{1}{\sqrt{1-4t^2}}\,dt$		
$\int \frac{1+4t^6}{t^2}\,dt$		
$\int \frac{t^2}{1+4t^6}\,dt$		
$\int \frac{t^3}{1+4t^4}\,dt$		
$\int \frac{t}{1+4t^4}\,dt$		
$\int t\sqrt{4-t}\,dt$		

☞Homework on back.

Hand In Next Time. WeBWorK: Set Day10 due Thursday night (long set). Name: _____

1. Determine $\int \sec(1+2\sin x)\cos x\,dx$

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

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

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

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

6. Hard. Hint: See today's online notes, pages 11–12. Determine $\int_0^4 x\sqrt{2x+1}\,dx$.