AP: Homework
1/29-2/2

due: Tuesday:

1. Find the average value of the function $f(x) = \frac{4}{3x+1}$ on [1,3].
2. If $\frac{dy}{dx} = 4y$ and if $y = 100$ when $x = 0$, find *x* when $y = 400$.
3. If $y = lnx$, find the average rate of change of *y* with respect to *x* on the interval [2,5].
4. If $y = (x+1)^{2x}$, find $\frac{dy}{dx}$ at $x = 2$.
5. Find the area of the region bounded by $y = \frac{2}{5x-3}$, the x-axis, $x = 4$, and $x = 5$.
6. Write an equation of the normal line to the curve $y = \ln(3x^2 - 1)$ at the point whose abscissa is 2.

on: Wednesday: test

due: Friday: Simplify and/or combine:

1. $e^{4x+3} \cdot e^{3x}$
2. $e^{7x+5} \div e^{2x-9}$
3. $(e^{9x+1})^3$
4. e^{-lnx^2}
5. $lne^{\frac{1}{x}}$
6. $\ln(\frac{e^{x+2}+4}{e^x})$
7. $e^{5\ln(x+1)}$
8. $x^4 \cdot e^{-2lnx}$
9. $e^{5lnx+ln7}$

Monday: read pg. 172

1. pg. 178 / #1, 4, 5, 7, 8, 9
2. Find y':
   a. $y = e^{-3x^2}$
   b. $y = \frac{e^{2x}}{x^2}$
   c. $y = \ln(\frac{e^{4x}-1}{e^{4x}+1})$
   d. $y = x^5 \cdot e^{-3lnx}$
   e. $y^2e^{3x} + xy^3 = 1$
3. Evaluate: a. $\lim_{x\to\infty} e^{-x}$ b. $\lim_{x\to-\infty} e^{-x}$ c. $\lim_{x\to-\infty} \ln(2+e^x)$
4. Find the linearization of $f(x) = x + e^{4x}$ at $x = 0$.
5. A particle moves along the x-axis according to the law of motion $s = te^{2t}$. Find the velocity of the particle at time $t = 2$.