

# Math 1B Discussion Section Problems

Rob Bayer

September 6, 2007

You should work on the following problems in groups of 3 or 4. Try to get through as many as you can, but you aren't expected to finish everything. Instead, you should make sure everyone in your group knows **how** to solve all the problems, and not just the answers.

1. Write  $\frac{x^5+3x^2-2}{x-1}$  in proper form.
2. Give the form of the partial fraction decomposition you would use to integrate each of the following. You need not actually compute A, B, C, etc:
  - (a)  $\int \frac{1}{(x+1)(x+2)(x+3)}$
  - (b)  $\int \frac{1}{x(x+3)^3(x-2)}$
  - (c)  $\int \frac{1}{x^2(x^2+6x+9)}$
3. Find  $\int \frac{2u}{u^2-1} du$ 
  - (a) Using partial fractions
  - (b) Using a simple substitution
  - (c) Are these two answers the same?
4. Find  $\int \frac{6x^3+7x^2-2x-5}{x^4-x^2} dx$