

Math 1B Discussion Section Problems

Rob Bayer

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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. Differentiate each of the following:

- $(x^3 + 2)(x^6 - 10)$
- $\frac{3x-1}{2x+1}$
- $e^{\sin(x)}$

2. Find each of the following:

- $\int x^4 + \cos(x) dx$
- $\int \frac{\ln x}{x} dx$
- The area under the curve $y = xe^{x^2}$ between $x = 0$ and $x = 2$

3. Find each of the following:

- $\int \sqrt{t} \ln(t) dt$
- $\int_1^e x^3 \ln(x) dx$
- $\int \sin(x) \cos(x) \ln(\sin(x)) dx$
- $\int_0^{\sqrt{3}} \tan^{-1}(1/x) dx$