

Calculus I, section 10: survey

This is a survey to help me get to know you, your background, and your goals from this class. Please complete it and turn it in next class (Thursday, September 7). There are two parts. The first part is a set of simple survey questions; the second part consists of mathematical questions to help make sure the class focuses on the right things. **Neither part is graded.** I do not expect you to be able to answer all, or even necessarily any, of these. If you find that a question is giving you trouble, skip it; if you have some ideas about how you might approach it but aren't sure, or think you could maybe solve it using Google or textbooks but not immediately, write that down and move on.

Survey questions

Name

(Intended) major

Have you taken a calculus class before? If so, what class?

Why are you interested in taking Calculus I? ("It's required for my program" is a fine answer.)

Are there particular things you are hoping to learn in this class?

Do you have any concerns or worries about this class?

Math questions

Answer any you know, showing your work; partial answers are fine.

Problem 1. Let $f(x) = 2x + 1$.

- (a) What is $f(f(0))$?
- (b) What is the inverse function $f^{-1}(x)$?
- (c) What is the derivative $f'(3)$?

Problem 2. Suppose that $\sin \theta = \frac{1}{2}$. What could $\cos \theta$ be?

Problem 3. If $2^x = 4^y$ and $x + y = 9$, what is x ?

Problem 4. Evaluate the following limits:

- (a) $\lim_{x \rightarrow 0} \frac{x+1}{x+2}$
- (b) $\lim_{x \rightarrow 1} \frac{x^2-1}{x-1}$

Problem 5. At what values of x , if any, does the function $\frac{2}{x^2-4}$ have vertical asymptotes?