Calculus I **Fall 2014**

Midterm review

Discussion session 17 - 21 October 2014

Janis's tips for midterm success!

1. Show **all** your work.
2. Organize your solutions - use words to describe what you are doing.
3. If you know the answer, work backwards to the beginning and connect your work.
4. There is more than one way to solve a problem.
5. Get a good night's sleep.
6. Show **all** your work.

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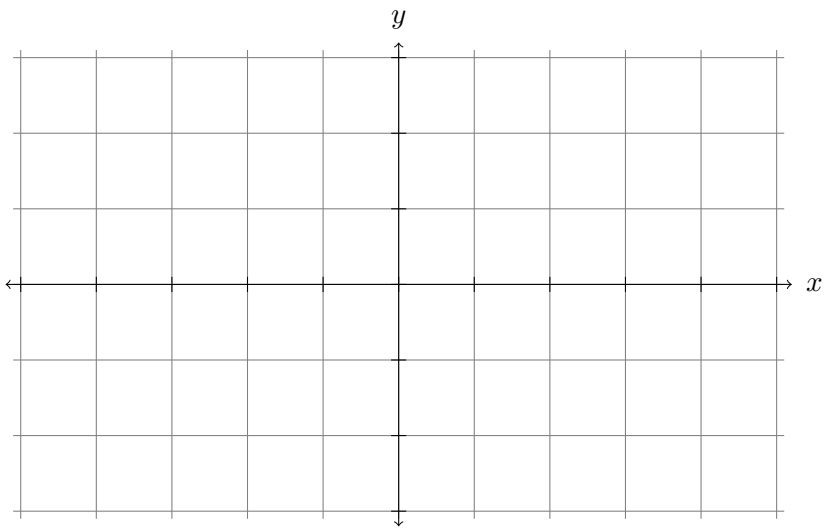
1. Let $g(t) = e^{2t-1}$. Find $(g^{-1})'(1)$.

2. Find and classify all critical points of $f(x) = x/\ln(x)$.

3. Consider the function $f(x) = -x^4 + 2x^2 - 3$. Does it have an absolute maximum? Absolute minimum?

4. Compute the derivative of $f(x) = x^x$ and draw the graphs of f and f' on the axes below.



5. A joyous calculus student throws her calculus textbook into the air in a fit of exuberance. She is standing on the roof of BSB, which is 50 feet in the air. The height of the book at time t is given by $h(t) = -15t^2 + 25t + 50$.

   (a) Find the velocity of the book at t seconds.

   (b) Find the acceleration of the book at t seconds.

   (c) When is the book at its highest point?

   (d) When does the book hit the ground?