Math 165, Spring 2010, Week 9 Lec 1

Online Lecture Notes for Furlough Day - required reading!

Here is a good graphing exercise. Please study every detail. It is a good review and summary of most of the calculus we have covered so far. It is also a large part of the calculus you will do in the future.

Graphing Exercise graph $f(x) = e^{-x^2}$ by following the procedure:

1. Ask: what do you know in general about $f(x)$?
2. x-intercepts
3. y-intercepts
4. Find all CNs: critical numbers
5. Find all CPs: critical points
6. Use 2nd derivative test to determine what kind of critical points.
7. Determine the end behavior of $f(x)$
   Right End: as $x \to +\infty$ $f(x) \to ?$ and Left end: as $x \to -\infty$ $f(x) \to ?$
8. Check for Vertical Asymptotes and determine behavior on both sides of VAs (if any).
9. Find all inflection points
10. Use all of the above to make a nice graph of $f(x)$

Note: It is usually Not Necessary to: (a) find all intervals where $f(x)$ is increasing/decreasing and (b) find all intervals where $f(x)$ is concave up/down. Steps 1–10 is enough to determine what