MA 224 - Quiz 1

SOLUTIONS

NOTE: My solution for a given problem is not necessarily the only correct way to do that problem; I accept any method of solving the problems that follows the instructions and uses material taught in this course. I give a lot of detail to make sure everything is clear—I don't expect you to give quite this much detail.

1. (1 points) How many of your lowest quiz grades are dropped at the end of the semester?

   2 are dropped

2. (1 points) Who do you contact to have a Connect online homework extended? (hint: this is the same person that you contact if Connect does not give proper credit for your correct answer)

   The connect coordinator, whose e-mail address is connectcoordinator@math.purdue.edu

3. (4 points) Find $\frac{dy}{dx}$ if
$$y = \ln(3x+1)e^{5x}$$

   We use the product rule: $y = f \cdot g$, so $y' = f'g + g'f$.
   We have that $f = \ln(3x+1)$ and $g = e^{5x}$, so
$$f' = \frac{1}{3x+1} \cdot 3 = \frac{3}{3x+1}$$
   (by the chain rule), and $g' = 5e^{5x}$.
   Putting this together with the above formula we have
$$\begin{aligned}\frac{dy}{dx} &= \frac{3}{3x+1}e^{5x} + 5e^{5x}\ln(3x+1) \\ &= e^{5x}\left(\frac{3}{3x+1} + 5\ln(3x+1)\right)\end{aligned}$$

4. (4 points) Find $g'(t)$ if
$$g(t) = \left(\sqrt[3]{t^2} - \frac{7}{t}\right)t$$

   Rewrite $g(t)$ for simplicity as $g(t) = \left(t^{2/3} - 7t^{-1}\right)t = t^{5/3} - 7$
   Now compute the derivative using the power rule:
$$g'(t) = \frac{5}{3}t^{2/3}$$