SOLUTIONS CHAPTER 13.2

MATH 132 WI01

4.

$$y' = e^{2x^2+5} \cdot (2 \cdot 2x) = e^{2x^2+5} \cdot 4x$$

14.

$$y = \frac{e^x - e^{-x}}{2} = \frac{e^x}{2} - \frac{e^{-x}}{2} = \frac{1}{2}e^x - \frac{1}{2}e^{-x}$$

(you will see in a minute why I prefer to keep the negative power as it is and not change it into a positive power in the denominator, as in $e^{-x} = \frac{1}{e^x}$)

$$y' = \frac{1}{2}e^x - \frac{1}{2}e^{-x} \cdot (-1)$$

(for the last term use chain rule!); simplified (common factor the half, and the two minuses that will give you a plus)

$$y' = \frac{1}{2}(e^x + e^{-x})$$

26. Product rule:

$$y' = e^{-x}(-1) \cdot \ln(x) + e^{-x} \cdot \frac{1}{x}$$

27. Chain rule, followed by product rule (for the power!)

$$y' = e^{x \ln(x)} \cdot (1 \cdot \ln(x) + x \cdot \frac{1}{x})$$

32. Find the derivative of y first (use product rule):

$$y' = ex^{e-1} \cdot e^x + x^e \cdot e^x$$

Now plug in 1 for x and produce the slope=$e \cdot 1^{e-1} \cdot e^1 + 1^e \cdot e^1 = e^2 + e$ and now use **point-slope formula**:

$$y - e = (e^2 + e)(x - 1)$$

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