Day 30 is Monday, November 5th, 2012

Pick up your graded exams from the counter.

No sign-in sheet today: I will determine who was absent by the leftover exams.

Common problems on exam

Factoring Always check factorization.

Problems with expressions involving exponents

[1] $f(x) = (x-c)e^{(-x)}$

$$f'(x) = \left(\frac{d}{dx}x - c\right)\cdot e^{(-x)} + (x-c)\left(\frac{d}{dx}e^{(-x)}\right)$$ Product Rule

$$= (1)e^{(-x)} + (x-c)((-1)e^{(-x)})$$

Pull out the common factor of $e^{(-x)}$

$$= e^{(-x)}(1 - (x-c)) = e^{-x}(c+1-x)$$

[3] $f(x) = \frac{x^4}{12} + \text{stuff}$

Rewrite $f(x) = \left(\frac{1}{12}\right) \cdot x^4 + \text{stuff}$

then $f'(x) = \left(\frac{1}{12}\right) \cdot (4x^3) + \text{stuff}$

$= \left(\frac{1}{3}\right) x^3 + \text{stuff}$

$f''(x) = \left(\frac{1}{3}\right)(3x^2) + \text{stuff}$

$= x^2 + \text{stuff}$

[4] $f(x) = C + x + \frac{9}{x}$

$\frac{1}{x} = x^{-1}$

Rewrite $f(x) = C + x + 9x^{-1}$

common incorrect rewritings:

$\frac{9}{x} = 9^{-x}$

Resuming Discussion of Section 6.1

6.1 #25

True or False? Justify.

The constant function $f(x) = \pi$ (Pi)

is an antiderivative of the constant function $k(x) = 0$

True, because $f'(x) = \frac{d}{dx} f(x) = \frac{d}{dx} \pi = 0 = k(x)$

↑ because π is constant

↑ this is how $k(x)$ was defined

6.1 #26

True or false.

The function $k(x) = 0$ is an antiderivative of $f(x) = \pi$.

Not true! $k'(x) = \frac{d}{dx} k(x) = \frac{d}{dx} 0 = 0 \neq f(x)$!!