

FRI 11-18-05

AP LOVELY LAVENDER P.13-18

② A

⑩ E

④ D

⑪ E

⑤ E

⑫ B

⑦ D

⑮ B

⑧ C

⑰ A

P. 170 QUICK REVIEW

$$\textcircled{2} \quad 7^x = e^u$$

SOLVE FOR u

$$\ln 7^x = \ln e^u$$

$$x \cdot \ln 7 = u \cdot \ln e$$

$$\underline{\underline{x \cdot \ln 7 = u}}$$

$$\underline{\underline{\ln 7^x = u}}$$

$$\underline{\underline{e^{\ln 7^x}}}$$

$$\underline{\underline{e^{x \cdot \ln 7}}}$$

$$\textcircled{7} \quad \underline{3 \ln x} - \ln 3x + \underline{\ln(12x^2)}$$

$$= \ln x^3 + \ln(12x^2) - \ln 3x$$

$$= \ln(12x^5) - \ln 3x$$

$$= \ln\left(\frac{12x^5}{3x}\right)$$

$$= \underline{\underline{\ln 4x^4}}$$

$$\textcircled{6} \quad \frac{\log_4 X^{15}}{\log_4 X^{12}} = \frac{15 \cdot \log_4 X}{12 \cdot \log_4 X} = \frac{5}{4}$$

$$\textcircled{10} \quad 3^{x+1} = 2^x$$

$$\ln 3^{x+1} = \ln 2^x$$

$$(x+1) \cdot \ln 3 = x \cdot \ln 2$$

$$\ln 3 \cdot x + \ln 3 = \ln 2 \cdot x$$

$$\ln 3 = \ln 2 \cdot x - \ln 3 \cdot x$$

$$\ln 3 = x(\ln 2 - \ln 3)$$

$$\frac{\ln 3}{\ln 2 - \ln 3} = x$$

F1- Tools	F2- Algebra	F3- Calc	F4- Other	F5 Pr9mID	F6- Clean Up
					$-\ln(2)$
					$e^{\ln(3/2)}$
					2
					.152882
					.152882
					2^x
MAIN	RAD AUTO	FUNC			4/30

$$\textcircled{9} \quad 5^x \ln 5 = 18$$

$$5^x = \frac{18}{\ln 5}$$

$$\ln 5^x = \ln \left(\frac{18}{\ln 5} \right)$$

$$x \cdot \ln 5 = \frac{\ln \left(\frac{18}{\ln 5} \right)}{\ln 5}$$

3.9 $y = e^x$; $y' = ?$

DEFN: $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$

$f'(x) = \lim_{h \rightarrow 0} \frac{e^{x+h} - e^x}{h}$

$f'(x) = \lim_{h \rightarrow 0} \frac{e^x \cdot e^h - e^x}{h}$

$= \lim_{h \rightarrow 0} \frac{e^x (e^h - 1)}{h}$

$= \lim_{h \rightarrow 0} e^x \cdot \lim_{h \rightarrow 0} \frac{e^h - 1}{h}$

$= e^x \cdot 1$

$= e^x$

LIM OF A
PROD = PROD
OF LIMITS

HEY!

$$\frac{d(e^x)}{dx} = e^x$$

u IS A
FUNCTION
OF
 x

GENERALIZE:

$$\frac{d(e^u)}{dx} = e^u \cdot \frac{du}{dx}$$

$$\text{Ex) } y = e^{x^2}; \quad \frac{dy}{dx} = ?$$

$$\frac{dy}{dx} = e^{x^2} \cdot 2x$$

$$\frac{dy}{dx} = \underline{\underline{2x \cdot e^{x^2}}}$$

$$y = \ln x \rightarrow y' = ?$$

DERIVATION:

$$y = \log_e x$$

$$x = e^y$$

DIFF. IMB.

$$1 = e^y \cdot y'$$

$$y' = \frac{1}{e^y}$$

$$y' = \frac{1}{x}$$

GENERALIZE:

$$\frac{d(\ln u)}{dx}$$

$$dx$$

$$= \frac{1}{u} \cdot \frac{du}{dx}$$

P.170 # 28 $y = \ln(x^2 + 1); y' = ?$

$$y' = \frac{1}{x^2 + 1} \cdot 2x$$

$$y' = \frac{2x}{x^2 + 1}$$

O.T.L.

• CORRECT AP P. 13-18 (LEARN!)
 & O.T.L.

• P. 170 1-13(000)
 21-29(000)

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* HOLIDAY PROJECTS!