

FR1 03-03-06

P. 321-2

$$\textcircled{29} \quad \ln\left(\frac{9}{2}\right) = 1.504$$

$$\textcircled{29} \quad \frac{2}{5\sqrt{5}} \sqrt{5x+8} + C$$

$$\textcircled{14} \quad w/2$$

$$\text{Solve } (4.31e-4 = X(.08206 \cdot 648)^{-2} \cdot X)$$

MEMORY ERROR

$\gamma(3)$
 $X(3)$

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ALTERNATE WAY TO EVALUATE INTEGRALS USING u SUBSTITUTION



$$\text{Ex)} \int_0^2 t \sqrt{1+t^2} dt = \int_0^2 t (1+t^2)^{\frac{1}{2}} dt$$

$$u = 1+t^2$$

$$\frac{du}{dt} = 2t$$

$$\frac{du}{2t} = dt$$

$$= \int_{t=0}^{t=2} \cancel{t} \cdot u^{\frac{1}{2}} \cdot \frac{du}{\cancel{2t}_1}$$

$$= \frac{1}{2} \int_{t=0}^{t=2} u^{\frac{1}{2}} du$$

$$= \frac{1}{2} \int_{x=0}^{x=2} u^{\frac{1}{2}} du \quad \text{OLD WAY}$$

$$= \left[\frac{1}{2} \cdot \frac{2}{3} \cdot u^{\frac{3}{2}} \right]_{x=0}^{x=2}$$

$$= \left[\frac{1}{3} (1+x^2)^{\frac{3}{2}} \right]_{x=0}^{x=2}$$

$$= \frac{1}{3} (1+2^2)^{\frac{3}{2}} - \frac{1}{3} (1+0^2)^{\frac{3}{2}}$$

$$= \frac{1}{3} \cdot 5^{\frac{3}{2}} - \frac{1}{3} \cdot 1^{\frac{3}{2}}$$

$$= \frac{1}{3} \cdot 5^{\frac{2}{2}} \cdot 5^{\frac{1}{2}} - \frac{1}{3}$$

$$= \frac{5}{3} \sqrt{5} - \frac{1}{3}$$

$$= \frac{1}{2} \int_{x=0}^{x=2} u^{\frac{1}{2}} du \quad \text{ALT. WAY.}$$

$$u = 1 + x^2$$

$$x=0 \rightarrow u = 1 + 0^2 = 1$$

$$x=2 \rightarrow u = 1 + 2^2 = 5$$

$$\rightarrow = \frac{1}{2} \int_1^5 u^{\frac{1}{2}} du$$

$$= \left[\frac{1}{2} \cdot \frac{2}{\frac{3}{2}} \cdot u^{\frac{3}{2}} \right]_{u=1}^{u=5}$$

$$= \frac{1}{3} \cdot 5^{\frac{3}{2}} - \frac{1}{3} \cdot 1^{\frac{3}{2}}$$

$$= \frac{5\sqrt{5} - 1}{3}$$

Ex) p. 322 #36

$$\int_{-\pi}^{\pi} \frac{\cos x}{\sqrt{4+3\sin x}} dx = \int_{u=4}^{u=4} I \text{ DON'T CARE } du$$

$$u = 4 + 3\sin x = \underline{\underline{0}}$$

$$\frac{du}{dx} = 3\cos x$$

ACT. WAY

$$x = \pi \rightarrow u = 4 + \sin \pi$$

$$u = 4 + 0 = \underline{\underline{4}}$$

$$x = -\pi \rightarrow u = 4 + \sin(-\pi)$$

$$= 4 + 0$$

$$= 4$$

$$\frac{du}{3\cos x} = dx$$

HEY LAURA & DAVID:

WASN'T THAT A GREAT
PROBLEM?

ENJOY.....

TR

O.T.L.

P. 322-3 33, 34, 35, 37

A.P. LOVELY LAVENDER (p. 71)

1, 3, 8, 9, 16

* FROM THE ACTUAL AP EXAM 2003

