TEAM: C·A·M·

SECTION 5.4

#12

Find the general indefinite integral

$$\int \left(x^2 + 1 + \frac{1}{x^2+1}\right) dx$$

$$= \int x^2 dx + \int dx + \int \frac{1}{x^2+1} dx$$

$$= \frac{1}{3} x^3 + x dx + \tan^{-1}(x) + c$$

LoL. We Love MATH ♥

CASANDRA LUCERO

Angustin Ciowotisan

(MAYA)) Mandukhai Khosbayar

FR3CH

5.4 #14. Find the general indefinite integral

$$\int (\csc^2 t - 2e^t)\, dt$$

$$= \int \csc^2 t \, dt - \int 2e^t \, dt$$

$$= -\cot(t) - 2e^t + C$$ (From Table 1 / 392)

Vinh
Ioan
Mike

Save The Polar Bears

Kristian, Jalisha, Melva

5.4 #22

$$\int_{-2}^{0} (u^5 - u^3 + u^2)\,du = \int_{-2}^{0} \left(\frac{u^6}{6} - \frac{u^4}{4} + \frac{u^3}{3} \right) du \Big]_{-2}^{0}$$

$$= \left(\frac{0^6}{6} - \frac{0^4}{4} + \frac{0^3}{3} \right) - \left(\frac{(-2)^6}{6} - \frac{(-2)^4}{4} + \frac{(-2)^3}{3} \right)$$

$$= 0 - \left(\frac{64}{6} - \frac{16}{4} + \frac{(-8)}{3} \right)$$

$$= 0 - \left(\frac{32}{3} - 4 - \frac{8}{3} \right)$$

$$= 0 - \left(\frac{32}{3} - \frac{8}{3} - 4 \right)$$

$$= 0 - \left(\frac{24}{3} - 4 \right)$$

$$= 0 - (8 - 4)$$

$$= 0 - 4$$

$$\boxed{= -4}$$

Unit 5.4 Science Buddies

#30 Evalute Integral

$$\int_1^2 \left(\frac{y+5y^7}{y^3}\right)dy$$

$$\int_1^2 \left(y^{-2}+5y^4\right)dy$$

anti-derivative

$$\left(\frac{y^{-1}}{-1}+\frac{5y^5}{5}\right)\Bigg|_1^2$$

plug in (2) & (1)

$$\left(\frac{y^{-1}}{-1}+\frac{\cancel{5}y^5}{\cancel{5}}\right) - \left(\frac{y^{-1}}{-1}+\frac{\cancel{5}y^5}{\cancel{5}}\right)$$

$$\left(\frac{(-2)^{-1}}{-1}+(2)^5\right) - \left(\frac{(1)^{-1}}{-1}+(1)^5\right)$$

$$(-.5+32) - (0)$$

$$(31.5) - 0 = \boxed{31.5} = \text{Answer}$$

Yves Moscule
Abrahan C

THE GROUP: Section 5.5 #2

#2 $\int x^3 (2+x^4)^5 \, dx$, $u = 2 + x^4$

$\int x^3 (2+x^4) \, dx$

let $u = 2 + x^4$

$du = 4x^3 \, dx$

$\frac{du}{4} = x^3 \, dx$

$\int (u)^5 \frac{du}{4}$

$= \frac{1}{4} \int (u)^5 \, du$

$= \frac{1}{4} \frac{u^6}{6} \cancel{du} + C$

$= \frac{1}{24} (2+x^4)^6 + C$

W.W.V

Beatrice
Wilgens
Viviene

5.5
\# 6. $\int \frac{\sec^2(1/x)}{x^2}\,dx$; $u = 1/x = x^{-1}$

$du = -1/x^2\,dx$ ~~or~~ $-x^{-2}dx$

$du = -\frac{dx}{x^2}$

$\int \sec^2(1/x)\,\frac{dx}{x^2}$

$-\int \sec^2 u\,du \approx -\tan u + c$

$\approx -\tan 1/x + c$

Kickass

5.5 #10

$$\int (3t+2)^{2.4}\, dt$$

$u = 3t+2$

$t = \frac{u-2}{3}$

$dt = \frac{1}{3} du$

$$= \frac{1}{3} \int u^{2.4}\, du$$

$$= \frac{1}{3} \frac{u^{3.4}}{3.4} + C$$

$$= \frac{1}{3} \frac{(3t+2)^{3.4}}{3.4} + C$$

Bianca
Stan
Max

Pythagorus

14 $\int e^{x} \sin(e^{x})\,dx$

Let $u=e^{x}$ then $du=e^{x}dx$

$\int e^{x} \sin(e^{x})\,dx$

$= \int \sin u\, du$

$= -\cos u + C$

$= -\cos(e^{x}) + C$

4/28/10

MAT151...

5.5) #16 Substitution Rule:

16.) $\int \frac{x}{(x^2+1)}\,dx =$

let $u = (1+x^2)$

so

$du = 2x\,dx \Rightarrow \frac{du}{2} = x\,dx$

$= \int \frac{1}{u}\left(\frac{du}{2}\right)$

F(x):

$= \frac{1}{2}\left(\ln|u| + c\right)$

$$\boxed{= \frac{1}{2}\left(\ln(x^2+1) + C\right)}$$

Mike Gaukhuyng

Jonathan Chen

SECTION 5.5
PROB 22

CIVARC
J. KOHLHEPP
R. D'SOUZA
S. MANCE

TEXT
REFERENCE PAGES
6. $\int \sin u\,du = -\cos u + C$

#22:

$$\int \sqrt{x}\,\sin\left(1+x^{3/2}\right)dx$$

$$\int \sin\left(1+x^{3/2}\right)\sqrt{x}\,dx$$

$$\boxed{\begin{aligned} u &= 1+x^{3/2} \\ du &= x^{3/2-1}\,dx \\ du &= x^{1/2}\,dx \\ du &= \sqrt{x}\,dx \end{aligned}}$$

$$= \int \sin u\,du$$
$$= -\cos u + C$$
$$= -\cos\left(1+x^{3/2}\right) + C$$

* ANSWER: $\boxed{-\cos\left(1+x^{3/2}\right)+C}$

Section 5.5
#32
We Love math

Krystina
Jessica
Stephanie

$$\int \frac{e^x}{e^x+1}\,dx = \int \frac{1}{e^x+1}\, e^x\, dx$$

$u = e^x + 1$
$du = e^x\, dx$

$$= \int \frac{1}{u}\, du$$

$$= \ln|u| + C$$

$$= \ln(e^x+1) + C$$

$$\int_1^3 (1+2x-4x^3)$$

$$\left(x+\frac{2x^2}{2}-4\frac{x^4}{4}\right)$$

$$(x+x^2-x^4)$$

$$\left((3)+(3)^2-(3)^4\right) - \left(1+1^2-1^4\right)$$

$$(3+9-81) - (1)$$

$$-69 - (1)$$

$$=-70$$

Pablo Espichan
Sam Tosia

Tiejun Wen

Will Aibich

B.A is B.S

$$\int (y^3 + 1.8y^2 - 2.4)\, dy$$

$$\frac{y^4}{4} + \frac{1.8y^3}{3} - \frac{2.4^2}{2}$$

$$\frac{\tan^{-1} x}{1+x^2}\, dx = \int u \, du$$

$$= \frac{u^2}{2} + C$$

$u = \tan^{-1} x$

$du = \frac{1}{1+x^2}\, dx$

$$= \frac{(\tan^{-1} x)^2}{2} + C$$

TEAM Diesel

Connor Payne Stanley Tuchez Tyler Ferst