Nombre del profesor: Jorge Enrique Albores

Nombre del alumno: Esthela Nahomy Álvarez Cruz

Grado: 6

Materia: Matemática aplicada

Nombre del trabajo: EJERCICIOS 4

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$\int \sqrt{16x^2-1}\,dx \quad v^2 = 16x^2 \quad v = 4x \quad dv = 4 \quad a^2 = 1 \quad a = 1$

$\frac{1}{4} \quad \frac{4x}{2}\sqrt{16x^2-1} = \frac{1}{2}\ln|4x + \sqrt{16x^2+1}| + c$

$\frac{4x}{8}\sqrt{16x^2-1} - \frac{1}{2}\ln|4x + \sqrt{16x^2+1}| + c$

$\int \sqrt{4-4x^2}\,dx \quad v^2 = 4x^2 \quad v = 2x \quad dv = 2 \quad a^2 = 4 \quad a = 2$

$\frac{1}{2} \quad \frac{2x}{2}\sqrt{4-4x^2} + \frac{4}{2}\text{ arc Sen }\frac{2x}{2}$

$\frac{2x}{4}\sqrt{4-4x^2} + \frac{4}{2}\text{ arc Sen }\frac{2x}{2} + c$

$\int \frac{dx}{\sqrt{x^2-16}} \quad v^2 = x^2 \quad v = x \quad dv = 1 \quad a^2 = 16 \quad a = 4$

$2\left(\frac{1}{8}\right)\ln\left|\frac{x+4}{x-4}\right| + c \quad \frac{1}{8}\ln\left|\frac{x+4}{x-4}\right| + c$

$\int \frac{dx}{16x^2+25} \quad v^2 = 16x^2 \quad v = 4x \quad dv = 4 \quad a^2 = 25 \quad a = 5$

$\frac{1}{4} \quad \frac{1}{5}\text{ arc tan }\frac{4x}{5} + c \quad \frac{1}{20}\text{ arc tan }\frac{4x}{5} + c$

$\int \frac{dx}{2x\sqrt{4x^2-1}} \quad v^2 = 4x^2 \quad v = 2x \quad dv = 2 \quad a^2 = 1 \quad a = 1$

$\frac{1}{2}\text{ arc Sen }\frac{2x}{1} + c$

$\int \frac{dx}{\sqrt{81x^2-9}}$ $v^2 = 81x^2$ $v = 9x$ $dv = 9$ $\frac{1}{9} \ln|4x + \sqrt{81x^2-4}| + c$

$\int \frac{dx}{4x^2-4}$ $v^2 = 4x^2$ $v = 2x$ $dv = 2$ $a^2 = 1$ $a = 2$ $\frac{1}{2}\frac{1}{4} \ln\left|\frac{2x-2}{2x+1}\right| + c = \frac{1}{8} \ln\left|\frac{2x-2}{2x+2}\right|$

$\int \frac{dx}{16-4x^2}$ $v^2 = 4x^2$ $v = 2x$ $dv =$ $a^2 = 16$ $a = 4$ $\frac{1}{2}\frac{1}{8} \ln\left|\frac{4+2x}{4-2x}\right| + c$

$\frac{1}{16} \ln\left|\frac{4+2x}{4-2x}\right| + c$

$\int \frac{dx}{\sqrt{4x^2+9}}$ $v^2 = 4x^2$ $v = 2x$ $dv = 2$ $a^2 = 9$ $a = 3$ $\frac{1}{2} |2x| \, 2x + \sqrt{4x^2+9}$

$+c$

$\int \frac{dx}{3x\sqrt{9x^2-1}}$ $v^2 = 9x^2$ $v = 3x$ $dv = 3$ $a^2 = 1$ $a = 1$ $\frac{1}{3} \text{arc sec} \frac{3x}{1} + c$

$\int \sqrt{25-4x^2}$ $v^2 = 4x^2$ $v = 2x$ $dv = 2$ $a^2 = 25$ $a = 5$ $\frac{1}{2} \frac{2x}{2} \sqrt{25-4x^2} + \frac{25}{2}$ arc Sen $\frac{2x}{5} + c$

$\int \frac{dx}{\sqrt{4x^2+1}}$ $= v^2 = 4x^2$ $v = 2x$ $dv = 2$ $a^2 = 2$ $a = 1$

$\frac{1}{2} \ln|2x + \sqrt{4x^2+1}| + c$

$\int \frac{dx}{\sqrt{x^2+4}}$ $v^2 = x^2$ $v = x$ $dv = 1$ $a^2 = 4$ $a = 2$

$\ln C x \sqrt{x^2+4}$ $+C$

$\int \frac{dx}{49-x^2}$ $v^2 = x^2$ $v = x$ $dv = 1$ $a^2 = 49$ $a = 7$

$\frac{1}{2}(7) \ln \left| \frac{7+x}{7-x} \right| \frac{1}{14} \ln |7+x| + C$

$\int \frac{dx}{\sqrt{4x^2+1}}$ $V^2 = 4x^2$ $V = 2$ $dv = 5$ $a^2 = 1$

$\frac{1}{2} \ln 2x \sqrt{4x^2+1}$

$\frac{1}{2}(4) \ln \left| \frac{4x^2-4}{4x^2+4} \right| \frac{1}{16} \ln \left| \frac{4x^2-4}{4x^2+4} \right| + C$