

**Nombre del Alumno:**

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**Nombre del trabajo:**

Ejercicios

**Materia:**

Matemáticas Aplicadas

PASIÓN POR EDUCAR

**Grado:**

Sexto Cuatrimestre

**Grupo:**

Único

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Nota Yamileth Guillen Rivero

$$\begin{aligned} 1) \int \sqrt{16x^2-1} dx \quad v^2 = 16x^2 \quad v = 4x \quad dv = 4 \quad a^2 = 1 \quad a = 1 \\ \frac{1}{4} \cdot \frac{4x}{2} \sqrt{16x^2-1} = \frac{1}{2} \ln |4x + \sqrt{16x^2-1}| + C \\ \frac{4x}{8} \sqrt{16x^2-1} - \frac{1}{2} \ln |4x + \sqrt{16x^2-1}| + C \end{aligned}$$

$$\begin{aligned} 2) \int \sqrt{4-4x^2} dx \quad v^2 = 4x^2 \quad v = 2x \quad dv = 2 \quad a^2 = 4 \quad a = 2 \\ \frac{1}{2} \cdot \frac{2x}{2} \sqrt{4-4x^2} + \frac{4}{2} \arcsin \frac{2x}{2} \\ \frac{2x}{4} \sqrt{4-4x^2} + \frac{4}{2} \arcsin \frac{2x}{2} + C \end{aligned}$$

$$\begin{aligned} 3) \int \sqrt{x^2-16} dx \quad v^2 = x^2 \quad v = x \quad dv = 1 \quad a^2 = 16 \quad a = 4 \\ \frac{1}{2(4)} \ln \left| \frac{x+4}{x-4} \right| + C \quad \frac{1}{8} \ln \left| \frac{x+4}{x-4} \right| + C \end{aligned}$$

$$\begin{aligned} 4) \int \frac{dx}{16x^2+25} \quad v^2 = 16x^2 \quad v = 4x \quad dv = 4 \quad a^2 = 25 \quad a = 5 \\ \frac{1}{4} \cdot \frac{1}{5} \arctan \frac{4x}{5} + C \quad \frac{1}{20} \arctan \frac{4x}{5} + C \end{aligned}$$

$$\begin{aligned} 5) \int \frac{dx}{16-x^2} \quad v^2 = x^2 \quad v = x \quad dv = 1 \quad a^2 = 16 \quad a = 4 \\ \frac{1}{2(4)} \ln \left| \frac{4+x}{4-x} \right| \quad \frac{1}{8} \ln \left| \frac{4+x}{4-x} \right| + C \end{aligned}$$

$$\begin{aligned} 6) \int \frac{dx}{2x} \sqrt{4x^2-1} \quad v^2 = 4x^2 \quad v = 2x \quad dv = 2 \quad a^2 = 1 \quad a = 1 \\ \frac{1}{2} \arcsin \frac{2x}{1} + C \end{aligned}$$

Sofia Yamilem fullen fbes

$$\int \frac{dx}{\sqrt{81x^2-9}} \quad v^2=81x^2 \quad v=9x \quad dv=9 \quad a^2=9 \quad a=3$$

$$\frac{1}{9} \ln |9x + \sqrt{81x^2-9}| + C$$

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

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

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

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

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

$$\frac{1}{2} \ln |2x + \sqrt{4x^2+9}|$$

$$\int \frac{dx}{3x\sqrt{9x-1}} \quad v^2=9x \quad v=3x \quad dv=3 \quad a^2=1 \quad a=1$$

$$\frac{1}{3} \frac{1}{1} \arcsin \frac{3x}{1} + \frac{1}{3} \arcsin \frac{3x}{1} + C$$

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

$$\frac{2x}{2} \frac{\sqrt{4x^2-25}}{2} - \frac{25}{2} \ln |2x + \sqrt{4x^2-25}| + C$$

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

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

mita Yamilah (pilihan Flor):

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

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

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

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

$$\frac{1}{2(4)} \ln \left| \frac{4x^2-4}{4x^2+4} \right| + \frac{1}{18} \ln \left| \frac{4x^2-4}{4x^2+4} \right| + C$$