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Nombre del trabajo: Integrales 4

Materia: Matemáticas Aplicadas

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$$1. \int \frac{dx}{16x^2+4}$$

$$v^2 = 16x^2 \quad v = 4x \quad dv = 4 \quad a^2 = 4 \quad a = 2$$

$$\frac{1}{4} \cdot \frac{1}{2} \arctan \frac{4x}{2} + c$$

$$\frac{1}{8} \arctan \frac{4x}{2} + c$$

$$2. \int \frac{dx}{\sqrt{25x^2+1}}$$

$$v^2 = 25x^2 \quad v = 5x \quad dv = 5 \quad a^2 = 1 \quad a = 1$$

$$\frac{1}{5} \ln \left| 5x + \sqrt{25x^2+1} \right| + c$$

$$3. \int \frac{dx}{36-x^2}$$

$$v^2 = x^2 \quad v = x \quad dv = \quad a^2 = 36 \quad a = 6$$

$$\frac{1}{12} \ln \left| \frac{6+x}{6-x} \right| + c$$

$$4. \int \frac{dx}{\sqrt{4-4x^2}}$$

$$v^2 = 4x^2 \quad v = 2x \quad dv = 2 \quad a^2 = 4 \quad a = 2$$

$$\frac{1}{2} \arcsin \frac{2x}{2} + c$$

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$$5. \int \frac{dx}{2x\sqrt{4x^2-16}} \quad v^2=4x^2 \quad v=2x \quad dv=2 \quad a^2=16 \quad a=4$$

$$\frac{1}{2} \cdot \frac{1}{4} \operatorname{arc} \sec \frac{2x}{4} + c = \frac{1}{8} \operatorname{arc} \sec \frac{2x}{4} + c$$

$$6. \int \sqrt{25-25x^2} dx \quad v^2=25x^2 \quad v=5x \quad dv=5 \quad a^2=25 \quad a=5$$

$$\frac{1}{5} \cdot \frac{5x}{2} \sqrt{25-25x^2} + \frac{25}{2} \operatorname{arc} \operatorname{sen} \frac{5x}{5} + c$$

$$\frac{5x}{10} \sqrt{25-25x^2} + \frac{25}{2} \operatorname{arc} \operatorname{sen} \frac{5x}{5} + c$$

$$7. \int \sqrt{x^2-49} dx \quad v^2=x^2 \quad v=x \quad dv= \quad a^2=49 \quad a=7$$

$$\frac{x}{2} \sqrt{x^2-49} - \frac{49}{2} \ln \left| x + \sqrt{x^2-49} \right| + c$$

$$8. \int \frac{dx}{4x^2-25} \quad v^2=4x^2 \quad v=2x \quad dv=2 \quad a^2=25 \quad a=5$$

$$\frac{1}{2} \cdot \frac{1}{10} \ln \left| \frac{2x-5}{2x+5} \right| + c$$

$$\frac{1}{20} \ln \left| \frac{2x-5}{2x+5} \right| + c$$

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$$9. \int \frac{dx}{\sqrt{36x^2-1}}$$

$$v^2 = 36x^2 \quad v = 6x \quad dv = 6 \quad a^2 = 1 \quad a = 1$$

$$\frac{1}{6} \ln \left| 6x + \sqrt{36x^2-1} \right| + C$$

$$10. \int \frac{dx}{1-36x^2}$$

$$v^2 = 36x^2 \quad v = 6x \quad dv = 6 \quad a^2 = 1 \quad a = 1$$

$$\frac{1}{6} \cdot \frac{1}{2} \ln \left| \frac{1+6x}{1-6x} \right| + C = \frac{1}{12} \ln \left| \frac{1+6x}{1-6x} \right| + C$$

$$11. \int \frac{dx}{\sqrt{49x^2-4}}$$

$$v^2 = 49x^2 \quad v = 7x \quad dv = 7 \quad a^2 = 4 \quad a = 2$$

$$\frac{1}{7} \ln \left| 7x + \sqrt{49x^2-4} \right| + C$$

$$12. \int \frac{dx}{4x^2-1}$$

$$v^2 = 4x^2 \quad v = 2x \quad dv = 2 \quad a^2 = 1 \quad a = 1$$

$$\frac{1}{2} \cdot \frac{1}{2} \ln \left| \frac{2x-1}{2x+1} \right| + C = \frac{1}{4} \ln \left| \frac{2x-1}{2x+1} \right| + C$$

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$$13. \int \sqrt{1-9x^2} dx \quad v^2 = 9x^2 \quad v = 3x \quad dv = 3 \quad a^2 = 1 \quad a = 1$$

$$\frac{1}{3} \frac{3x}{2} \sqrt{1-9x^2} + \frac{1}{2} \arcsin \frac{3x}{1} + c$$

$$\frac{3x}{6} \sqrt{1-9x^2} + \frac{1}{2} \arcsin \frac{3x}{1} + c$$

$$14. \int \frac{dx}{\sqrt{4x^2-9}} \quad v^2 = 4x^2 \quad v = 2x \quad dv = 2 \quad a^2 = 9 \quad a = 3$$

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

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

$$15. \int \frac{dx}{16x^2-25} \quad v^2 = 16x^2 \quad v = 4x \quad dv = 4 \quad a^2 = 25 \quad a = 5$$

$$\frac{1}{4} \frac{1}{10} \ln \left| \frac{4x-5}{4x+5} \right| + c = \frac{1}{40} \ln \left| \frac{4x-5}{4x+5} \right| + c$$

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

$$\frac{1}{4} \operatorname{arcsec} \frac{4x}{1} + c$$