



UDS

Universidad Del Sureste

6<sup>to</sup> Cuatrimestre Bachillerato  
Administración De Recursos Humanos

MATEMATICA APLICADA

Profesor: Ojeda Trujillo Juan José

Alumna: Dayrani Norleth Mazariegos  
Borrallas

EXAMEN FINAL

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Dayan: Norleth Marantega Borralles

$$70 - \int \sin^2 x \, dx$$

$$\int \frac{1 - \cos(2x)}{2} \, dx$$

$$= \frac{1}{2} \int 1 - \cos(2x) \, dx$$

$$= \frac{1}{2} \int 1 \, dx - \int \cos(2x) \, dx$$

$$= \frac{1}{2} \left( x - \frac{\sin(2x)}{2} \right)$$

$$= \frac{1}{2} x - \frac{\sin(2x)}{4}$$

$$= \frac{1}{2} x - \frac{\sin(2x)}{4} + C$$

Dayrani Norleth Mazarreyes Borrallas

$$2. - \int \text{Sen}^3 \left( \frac{x}{3} \right) dx$$

$$\int 3 \text{sen}(t)^3 dt$$

$$3 \int \text{sen}(t)^3 dt$$

$$3 \int \text{sen}(t)^2 \text{sen}(t) dt$$

$$3 \int -1 + u^2 du$$

$$3 \left( - \int 1 du + \int u^2 du \right)$$

$$= 3 \left( -u + \frac{u^3}{3} \right)$$

$$= 3 \left( -\cos(t) + \frac{\cos(t)^3}{3} \right)$$

$$= 3 \left( -\cos\left(\frac{x}{3}\right) + \frac{\cos\left(\frac{x}{3}\right)^3}{3} \right)$$

$$= -3 \cos\left(\frac{x}{3}\right) + \cos^3\left(\frac{x}{3}\right)$$

$$= -3 \cos\left(\frac{x}{3}\right) + \cos^3\left(\frac{x}{3}\right)$$

Deurani No. M. B.

$$30 - \int \text{Sen } x + \cos^2 x \, dx$$

$$\int 1 \, dx = x = \underline{x + C}$$

$$40 - \int \cos^3 \left( \frac{2x}{3} \right) \, dx$$

$$\int \frac{3 \cos(t)^3}{2} \, dt = \frac{3}{2} \int \cos(t)^3 \, dt$$

$$\frac{3}{2} \int \cos(t)^2 \cos(t) \, dt$$

$$\frac{3}{2} \int 1 - u^2 \, du$$

$$\frac{3}{2} \int 1 \, du - \int u^2 \, du$$

$$= \frac{3}{2} \left( u - \frac{u^3}{3} \right)$$

$$= \frac{3}{2} \left( \text{Sen}(t) - \frac{\text{Sen}(t)^3}{3} \right)$$

$$= \frac{3}{2} \left( \text{Sen} \left( \frac{2x}{3} \right) - \frac{\text{Sen} \left( \frac{2x}{3} \right)^3}{3} \right)$$

$$= \underline{\underline{\frac{3 \text{Sen} \left( \frac{2x}{3} \right) - \text{Sen}^3 \left( \frac{2x}{3} \right)}{2} + C}}$$

Duvarani No Mo B.

$$5.- \int \sec^4 2x \, dx$$

$$\int \frac{\sec(t)^4}{2} \, dt$$

$$\frac{1}{2} \int \sec(t)^4 \, dt$$

$$= \frac{1}{2} \left( \frac{1}{3} \sec(t)^2 \tan(t) + \frac{2}{3} \int \sec(t)^2 \, dt \right)$$

$$= \frac{1}{2} \left( \frac{1}{3} \sec(t)^2 \tan(t) + \frac{2}{3} \tan(t) \right)$$

$$= \frac{1}{2} \left( \frac{1}{3} \sec(2x)^2 \tan(2x) + \frac{2}{3} \tan(2x) \right)$$

$$= \frac{\sec(2x)}{6 \cos^3(2x)} + \frac{\sec(2x)}{3 \cos(2x)} + C.$$

Dayant No. M. B.

$$60. \int (2x^2 - 3x + 3)^3 dx$$

$$\int 8x^6 - 125x^3 + 27 - 60x^5 + 36x^4 + 150x^4 + 225x^2 + 54x^2 + 135x - 180x^3 dx$$

$$\int 8x^6 - 305x^3 + 27 - 60x^5 + 186x^4 + 279x^2 - 135x dx$$

$$\int 8x^6 dx - \int 305x^3 dx + \int 27 dx - \int 60x^5 dx + \int 186x^4 dx + \int 279x^2 dx - \int 135x dx$$

$$= \frac{8x^7}{7} - \frac{305x^4}{4} + 27x - \frac{10x^6}{5} + \frac{186x^5}{5} + 93x^3 - \frac{135x^2}{2} + C$$

$$70. \int \frac{x^3 + 5x^2 - 4}{x^2} dx$$

$$\int \frac{x^3}{x^2} + \frac{5x^2}{x^2} - \frac{4}{x^2} dx$$

$$\int x + 5 - \frac{4}{x^2} dx$$

$$\int x dx + \int 5x dx - \int \frac{4}{x^2} dx$$

$$= \frac{x^2}{2} + 5x + \frac{4}{x} + C$$

## Dayımı Norleth Hazirleyis Borullis.

$$8. \int \frac{x^2}{4\sqrt{x^3+2}} dx$$

$$\frac{1}{4} \int \frac{x^2}{\sqrt{x^3+2}} dx$$

$$= \frac{1}{4} \left( \frac{2}{3} + \right)$$

$$= \frac{1}{4} \left( \frac{2}{3} + \right) = \frac{1}{4} \left( \frac{2}{3} \right) (\sqrt{x^3+2})$$

$$= \frac{1}{6} (\sqrt{x^3+2}) + C$$

$$10. \int \frac{(1+x)^2}{\sqrt{x}} dx$$

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

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

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

$$= 2\sqrt{x} + \frac{4x\sqrt{x}}{3} + \frac{2x^2\sqrt{x}}{5} + C$$