



**UNIVERSIDAD AUTONOMA  
DE AGUASCALIENTES**

**DEPARTAMENTO DE MATEMÁTICAS Y FÍSICA**

Materia: **CALCULO INTEGRAL**

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**Mini Examen 1 Periodo Parcial 1**

**fecha: 09/FEB/2022 - 09:00 -10:00hrs**

**Carrera: ICI 2-A**

# MINI EXAMEN 1

$$\textcircled{1} \int x^1 \sin(6x^2+3) dx = \int x \sin(u) \left( \frac{1}{12x} du \right) = \int \frac{1}{12} \sin u du$$

$$u = 6x^2 + 3$$

$$du = 12x dx$$

$$dx = \frac{1}{12x} du$$

$$= \frac{1}{12} \int \sin u du = \frac{1}{12} - \cos u = \underline{-\frac{1}{12} \cos(6x^2+3) + C}$$

$$\textcircled{2} \int \left( \frac{7x^3 + 5x^4 + 9x^6}{3x^7} \right) dx = \frac{1}{3} \left[ \int \left( \frac{x^2(7x + 5x^2 + 9x^4)}{3x^7} \right) dx \right] = \frac{1}{3} \left[ \int \frac{7x + 5x^2 + 9x^4}{x^5} dx \right]$$

$$= \frac{1}{3} \left[ \int \frac{7x}{x^5} dx + \int \frac{5x^2}{x^5} dx + \int \frac{9x^4}{x^5} dx \right]$$

$$= \frac{1}{3} \left[ \frac{7}{1} \int x^{-4} dx + \frac{5}{1} \int x^{-3} dx + \frac{9}{1} \int x^{-1} dx \right]$$

$$= \frac{1}{3} \left[ 7 \frac{x^{-3}}{-3} + 5 \frac{x^{-2}}{-2} + 9 \int \frac{1}{x} dx \right]$$

$$= \underline{\underline{\frac{1}{3} \left[ -\frac{7}{3x^3} - \frac{5}{2x^2} + 9 \ln|x| \right] + C}}$$