



Mi Universidad

Ejercicios

Nombre del Alumno; velasco Domínguez limberg David

Nombre del tema; de unidades

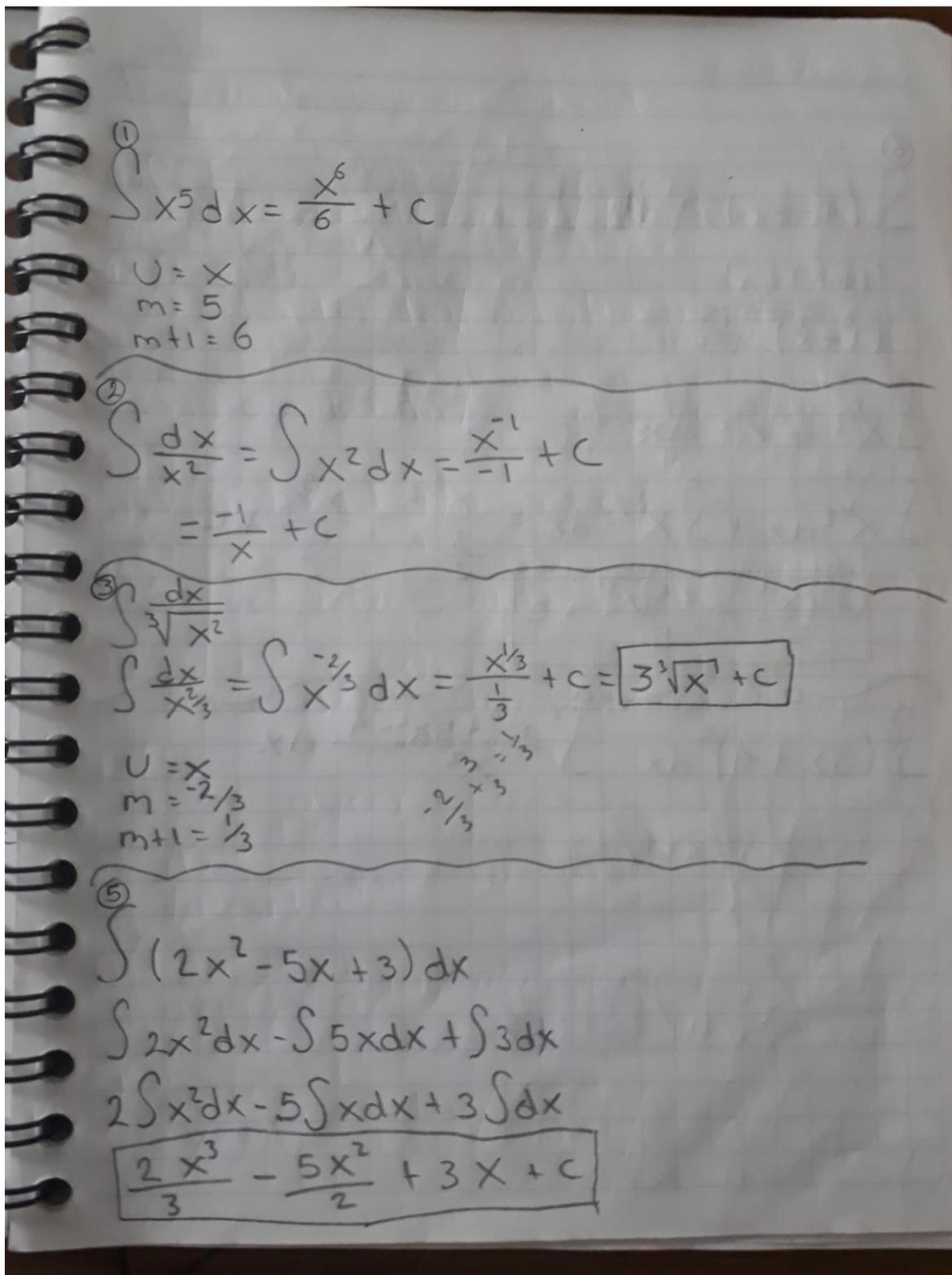
Parcial; I ro

Nombre de la Materia; matemáticas aplicadas

Nombre del profesor; Ojeda Trujillo juan José

Nombre de la Licenciatura; bachillerato

Cuatrimestre; 6to



$$\textcircled{6} \int (1-x)\sqrt{x} \, dx$$

$$(1-x)\sqrt{x}$$

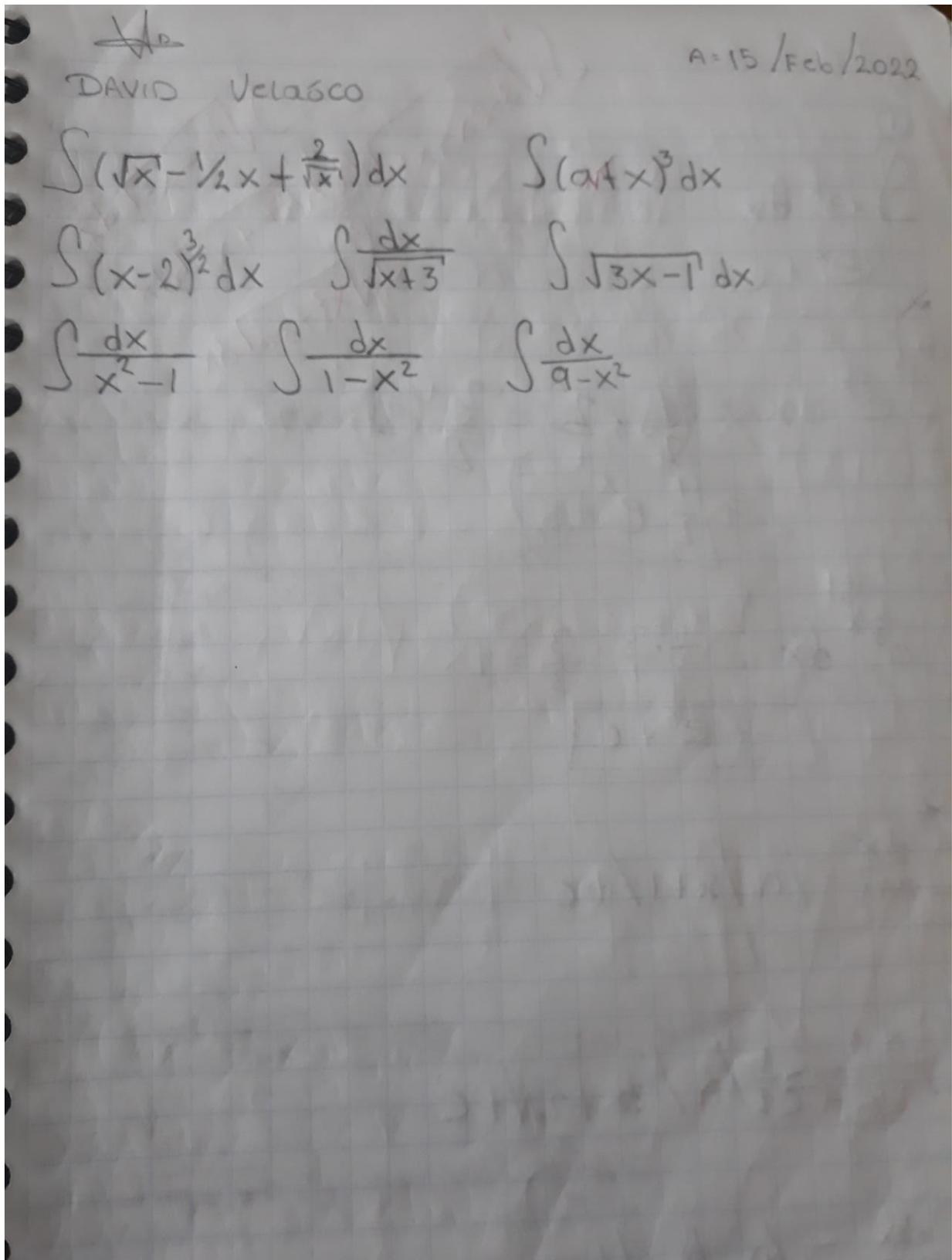
$$(1-x) x^{1/2}$$

$$\int x^{1/2} - x^{3/2} \, dx \quad \frac{2}{2} + \frac{1}{2} = \frac{3}{2}$$

$$\int x^{1/2} \, dx + \int x^{3/2} \, dx = \frac{x^{3/2}}{\frac{3}{2}} - \frac{x^{5/2}}{\frac{5}{2}} + C$$

$$\boxed{\frac{2^2 \sqrt{x^3}}{3} - \frac{2^2 \sqrt{x^5}}{5} + C}$$

$$\int (3x+4)^2 \, dx \quad \int \frac{x^3 + 5x^2 - 4}{x^2} \, dx$$



$$\textcircled{1} \int e^x dx = e^x + C$$

$$\int \sqrt{3-2x-x^2} dx + \int \sqrt{25-x^2} dx + \int \sqrt{8-4x^2} dx + \int \sqrt{x^2-36} dx$$

$$\textcircled{2} \int e^{2x} dx = \left(\frac{1}{2}\right) \cdot \left(\frac{2}{1}\right) = \frac{2}{2} \textcircled{1}$$

$$= \frac{1}{2} e^x + C$$

$$\textcircled{3} \int e^{\frac{1}{3}x} dx = \frac{1}{3} \cdot \frac{3}{1} \cdot \frac{3}{3} = 1$$

$$\frac{1}{3} e^x + C$$

$$\textcircled{4} \int \frac{dx}{x+1} = \ln|x+1| + C$$

$$\textcircled{5} \int \frac{dx}{2x+2} = \frac{1}{2} \ln|x+1| + C$$

$$\textcircled{6} \int \frac{dx}{x} = \ln|x| + C$$

$$\textcircled{1} \int \cos 2x dx = \frac{1}{2} \text{SEN } 2x + C$$

$$\textcircled{2} \int \text{SEN } \frac{x}{3} dx = -3 \cos \frac{x}{3} + C$$

$$\textcircled{3} \int \text{TAN } 3x dx = \frac{1}{3} \ln |\sec 3x| + C$$

$$\textcircled{10} \int \frac{dx}{4x^2 + 9} = \frac{1}{3} \text{ARCTAN } \frac{2x}{3} + C$$

$$u^2 = 4x^2$$

$$u = 2x$$

$$a^2 = 9$$

$$a = 3$$

$$\textcircled{11} \int \frac{dx}{\sqrt{4+x^2}} = \text{ARCSEN } x + C$$

$$13 \int \frac{dx}{\sqrt{25-16x^2}} = \text{ARCSEN } x + C$$

$$12 \int \frac{dx}{9+x^2} = \frac{1}{3} \text{ARCTAN } \frac{x}{3} + C$$

DAVID VILLANOVA

$A = 22/2/12$
 $\frac{1}{2}$

$$\int \frac{dx}{x^2 - 49} = \frac{1}{14} \ln \left| \frac{x+7}{7+x} \right| + C$$

$$\begin{aligned} u^2 &= x^2 \\ u &= x \\ a^2 &= 49 \\ a &= 7 \end{aligned}$$

~~$\int (x+3)^2$~~

$$\int \frac{dx}{x^2 + 81}$$

$$\frac{1}{18} \ln \left| \frac{x^2 - 9}{9 - x^2} \right| + C$$

$$\begin{aligned} u^2 &= x^2 \\ u &= x^2 \\ a^2 &= 48 \\ a &= 9 \end{aligned}$$



$$\int (x+3)^2 \frac{(x+3)(x+3)}{x^2 + 3x} = \frac{3x + 9}{x^2 + 6x + 9}$$

$$\int (x^2 + 6x + 9)$$

$$\int \frac{dx}{x-1} = \ln|x-1| + C$$

$$\int a^x dx = \frac{a^x}{\ln a} + C \quad a > 1 \neq 1$$

$$\begin{aligned} \int \frac{(1+\sqrt{x})^2}{\sqrt{x}} dx &= \int \frac{(1+2\sqrt{x}+x)}{\sqrt{x}} dx \\ &= \int \frac{dx}{\sqrt{x}} + 2 \int \frac{\sqrt{x}}{\sqrt{x}} dx + \int \frac{x}{\sqrt{x}} dx \\ &= \int x^{-1/2} dx + 2 \int dx + \int x^{2/2} x^{1/2} dx \\ &= \frac{x^{1/2}}{1/2} + 2x + \int x^{3/2} dx \\ &= 2\sqrt{x} + 2x + \frac{5/2}{5/2} x^{5/2} + C \\ &= 2\sqrt{x} + 2x + \frac{2}{5} \sqrt{x^5} + C \end{aligned}$$

$$\begin{aligned}
 \int \frac{(x+1)(x-2)}{\sqrt{x}} dx &= \int \frac{x^2 - x - 2}{\sqrt{x}} dx \\
 &= \int \frac{x^2}{\sqrt{x}} dx - \int \frac{x}{\sqrt{x}} dx - 2 \int \frac{dx}{\sqrt{x}} \\
 &= \int x^{2 - 1/2} dx - \int x^{-1/2} dx - 2 \int x^{-1/2} dx \\
 &= \int x^{3/2} dx - \int x^{1/2} dx - 2 \int x^{-1/2} dx \\
 &= \frac{x^{5/2}}{5/2} - \frac{x^{3/2}}{3/2} - 2 \frac{x^{1/2}}{1/2} + C \\
 &= \frac{2}{5} \sqrt{x^5} - \frac{2}{3} \sqrt{x^3} - 4\sqrt{x} + C
 \end{aligned}$$

$$\int \frac{dx}{\sqrt{5-x^2}} = \text{ARC SEN } \frac{x}{\sqrt{5}} + C$$

$$\int \frac{dx}{x\sqrt{x^2-5}} = \frac{1}{\sqrt{5}} \text{ARC SEC } \frac{x}{\sqrt{5}} + C.$$

$$\int \frac{dx}{4x^2-9} = \begin{matrix} u^2 = 4x^2 \Rightarrow u = 2x \\ a^2 = 9 \Rightarrow a = 3 \end{matrix} \quad \frac{1}{6} \ln \left| \frac{2x-3}{2x+3} \right| + C$$

$$\int \sqrt{16-9x^2} dx = \begin{matrix} a^2 = 16 \Rightarrow a = 4 \\ u^2 = 9x^2 \Rightarrow u = 3x \end{matrix}$$

$$\frac{1}{2} (3x) \sqrt{16-9x^2} + \frac{1}{2} (16) \text{ARC SEN } \frac{3x}{4}$$

$$\boxed{\frac{3x^2}{2} \sqrt{16-9x^2} + 8 \text{ARC SEN } \frac{3x}{4} + C}$$

$$\int (e^x+1)^2 dx = \int (e^{2x} + 2e^x + 1) dx$$

$$\int e^{2x} dx + 2 \int e^x dx + \int dx$$

$$\boxed{\frac{1}{2} e^{2x} + 2e^x + x + C}$$