Algoritmo numérico - P2:
Lucas Jensen, Gabriel Pacheco, Filipe [illegible]

1-

x	1,5	3	4
$p(x)$	12,5	89	195

Lagrange

2-

x	$f(x)$
5	-0,878171
6	-1,646176
8	5,716707
10	-5,990268
12	131,655626
14	136,026834
16	-21,872897
17	-18,488907
19	9,1432758
20	5,9173397
22	-1,8895419
23	-0,9522272

Splines Cúbicas

3- Simpson 1/3:

① $= 0{,}75 \int_0^1 \int_0^1 e^{\left(-\frac{(9x_1-2)^2}{4} - \frac{(9x_2-2)^2}{4}\right)} dx_1 dx_2$ $\left[e^{(b-a)} = e^b \cdot e^{-a} \right.$

$= 0{,}75 \int_0^1 e^{\left(-\frac{(9x_2-2)^2}{4}\right)} dx_2 \cdot \int_0^1 e^{\left(-\frac{(9x_1-2)^2}{4}\right)} dx_1$

②

$$0{,}75 \int_0^1 \int_0^1 e^{\left(-\frac{(9x_1+1)^2}{49} - \frac{9x_2+1}{10}\right)} dx_1 dx_2$$

$$= 0{,}75 \int_0^1 e^{\left(-\frac{9x_2+1}{10}\right)} dx_2 \int_0^1 e^{\left(-\frac{(9x_1+1)^2}{49}\right)} dx_1$$

③

$$0{,}5 \cdot \int_0^1 \int_0^1 e^{\left(-\frac{(9x_1-7)^2}{4} - \frac{(9x_2-3)^2}{4}\right)}$$

$$= 0{,}5 \cdot \int_0^1 e^{\left(-\frac{(9x_2-3)^2}{4}\right)} dx_2 \cdot \int_0^1 e^{\left(-\frac{(9x_1-7)^2}{4}\right)} dx_1$$

④

$$-0{,}2 \int_0^1 \int_0^1 e^{(-(9x_1-4)^2 - (9x_2^2-7)^2)} dx_1 dx_2$$

$$= -0{,}2 \int_0^1 e^{(-(9x_2-7)^2)} dx_2 \int_0^1 e^{(-(9x_1-4)^2)} dx_1$$

Volume: $-1{,}56756 \cdot 10^{29}$ /1

4ª Questão)

$A \cdot A^{-1} x = b \cdot A^{-1}$

$x = b \cdot A^{-1}$

2º Grau: $0,50918 - 0,11454x - 0,16595x^2$ //

3º grau:

$y = 0,428082842 - 0,178354713x + 0,788091602x^2 - 0,063602904x^3$

5ª Questão)

$x_1 = 7,492477892$

$x_2 = -0,448255283$

$x_3 = 9,368257625$

$x_4 = 8,165251034$ //

6ª Questão)

Usando $u(t) = 2t + 8e^{(-0,5t)}$

$u(1) = 6,852245278$

Usando RK 4ª ordem:

$h = 0,1 \rightarrow u(1) = 6,852245409$ //

$h = 0,01 \rightarrow u(1) = 6,905866022$ //

$h = 0,001 \rightarrow u(1) = 6,852245278$ //