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$\int_1^3 3e^x dx$  utilizando Quadratura Gaussiana

•  $m=1$  (2 pontos)

1) M.D.V:  $X = \frac{1}{2} [(b-a)t + (b+a)]$

$$X = \frac{1}{2} [(3-1)t + (3+1)]$$

$$X = t + 2$$

$$dX = dt$$

$$2) \int_1^3 3e^x dx = \int_{-1}^1 3e^{t+2} dt \approx A_0 F(t_0) + A_1 F(t_1)$$

$$\Rightarrow \int_{-1}^1 3e^{t+2} dt \approx 1 \cdot F\left(\frac{-\sqrt{3}}{3}\right) + 1 \cdot F\left(\frac{\sqrt{3}}{3}\right)$$
$$\approx 1 \cdot (12,4443) + 1 \cdot (39,4855)$$

$$\therefore \int_{-1}^1 3e^{t+2} dt \approx 51,9309$$

•  $n = 2$  (3 pontos)

1) M.D.V.: mesma de anterior

$$X = x + 2$$

$$dx = dx$$

$$2) \int_{-1}^1 3e^{x+2} dx \approx A_0 F(x_0) + A_1 F(x_1) + A_2 F(x_2)$$

$$\approx (0,55555556) F(0,77459667) +$$

$$(0,88888889) F(0) +$$

$$(0,55555556) F(-0,77459667)$$

$$\therefore \int_{-1}^1 3e^{x+2} dx \approx 52,1003$$