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Folha 6A – Integral de Riemann

1. Calcule os seguintes integrais:

(a)  $\int_1^2 e^{\pi x} dx;$

(b)  $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} |\operatorname{sen} x| dx;$

(c)  $\int_{-3}^5 |x - 1| dx;$

(d)  $\int_0^2 |(x - 1)(3x - 2)| dx.$

2. Calcule os seguintes integrais:

(a)  $\int_0^2 f(x) dx$ , com  $f(x) = \begin{cases} x^2 & \text{se } 0 \leq x \leq 1, \\ 3 - x & \text{se } 1 < x \leq 2; \end{cases}$

(b)  $\int_{-5}^0 2x\sqrt{4-x} dx;$

(c)  $\int_{\sqrt{3}/3}^{\sqrt{3}} \frac{1}{x^2\sqrt{x^2+1}} dx;$

(d)  $\int_0^2 x^3 e^{x^2} dx.$