

Fundamentos de Cálculo Aplicado

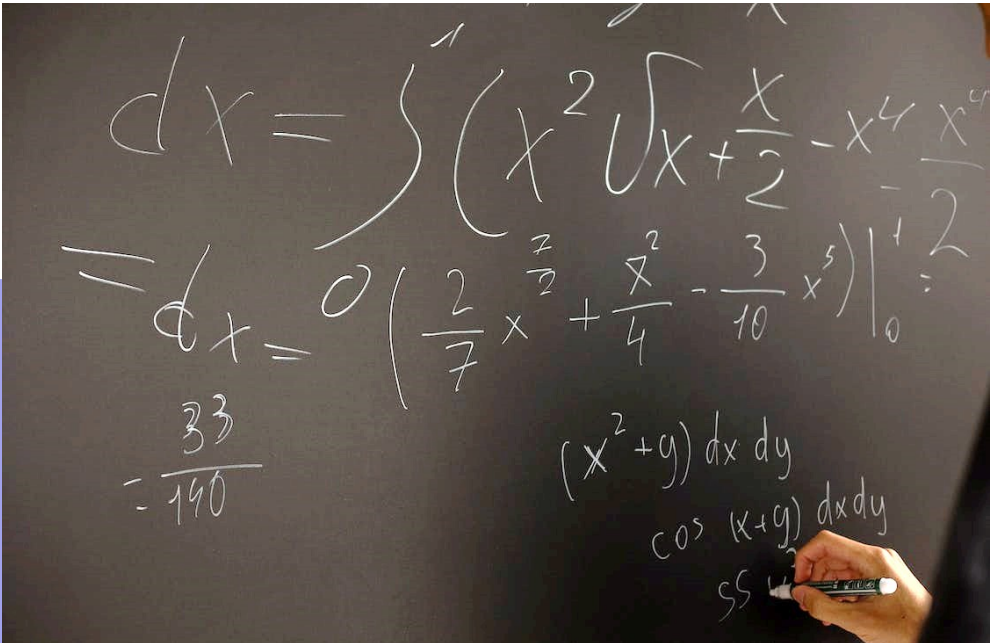
Fundamentos gerais sobre
funções

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Função logarítmica

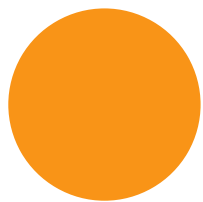


Handwritten mathematical derivations on a chalkboard:

$$dx = \int \left(x^2 \sqrt{x} + \frac{x}{2} - x^4 \frac{x^4}{2} \right)$$
$$= dx = \left(\frac{2}{7} x^{\frac{7}{2}} + \frac{x^2}{4} - \frac{3}{10} x^5 \right) \Big|_0^2$$
$$= \frac{33}{140}$$

Other expressions visible:

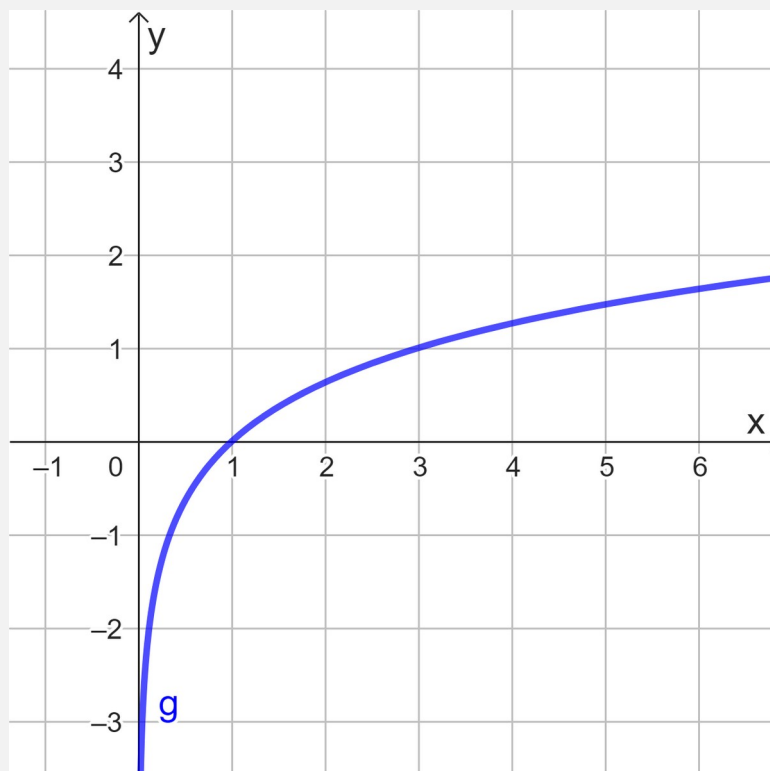
$$(x^2 + y) dx dy$$
$$\cos(x+y) dx dy$$
$$55 \sqrt{2}$$

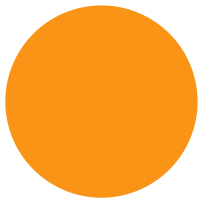


Função logarítmica

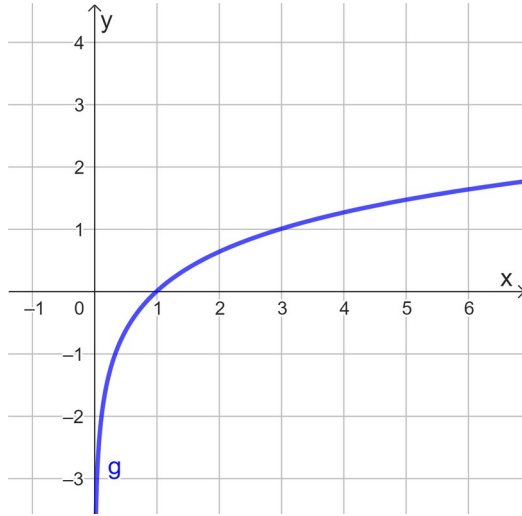
- Domínio:
- Imagem:
- Interseção com eixo : em

$$f : \mathbb{R}_{+}^* \rightarrow \mathbb{R}$$



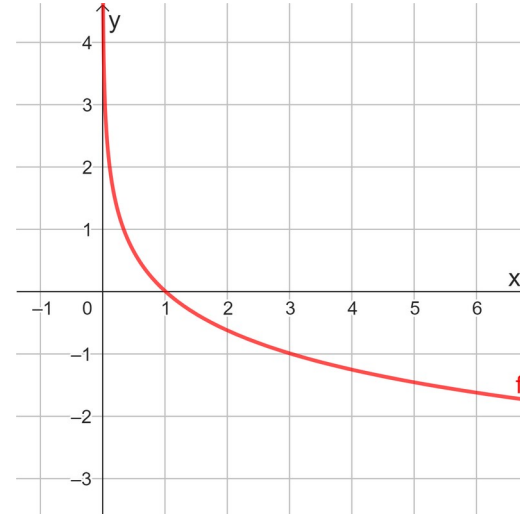


Função logarítmica e base



Crescente

$$a > 1$$

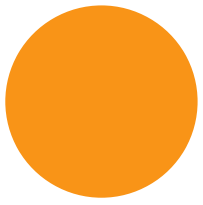


Decrescent
e

$$0 < a < 1$$



Crescente porque



Equação logarítmica

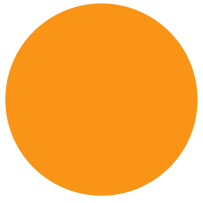
Equação em que a incógnita é apresentada no logaritmando ou na base de um logaritmo, ou ainda, em ambos os termos.

Exemplos:

- Propriedade: para e :

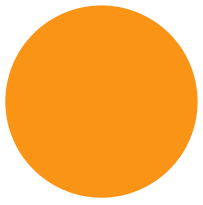
equivale a





Exemplo:



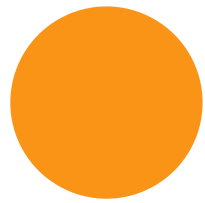


Exemplo: meia vida

O decaimento radioativo do césio-137 pode ser dado pela função:

Qual o tempo necessário para a quantidade ser reduzida à metade da inicial?





$$Q(t) = Q_0 \cdot e^{-0,023105t}$$

