

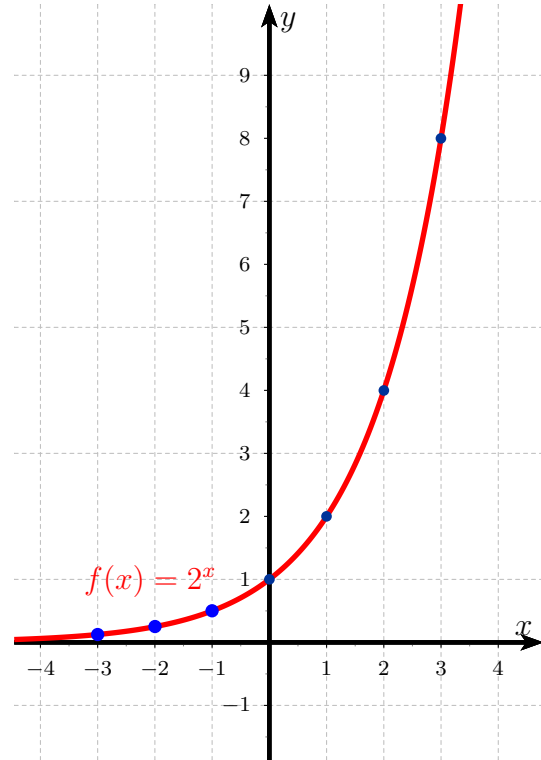
12ª LISTA DE EXERCÍCIOS

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1. Construir o gráfico da função exponencial de base 2, $f(x) = 2^x$.

Solução: Vamos primeiramente considerar a tabela

x	$y = f(x) = 2^x$	(x, y)
-3	$2^{-3} = \frac{1}{2^3} = \frac{1}{8}$	$\left(-3, \frac{1}{8}\right)$
-2	$2^{-2} = \frac{1}{2^2} = \frac{1}{4}$	$\left(-2, \frac{1}{4}\right)$
-1	$2^{-1} = \frac{1}{2}$	$\left(-1, \frac{1}{2}\right)$
0	$2^0 = 1$	$(0, 1)$
1	$2^1 = 2$	$(1, 2)$
2	$2^2 = 4$	$(2, 4)$
3	$2^3 = 8$	$(3, 8)$



2. Construa os gráficos cartesianos das seguintes funções exponenciais:

(a) $y = 3^x$

(d) $y = 10^x$

(g) $y = 2^x + 1$

(b) $y = \left(\frac{1}{3}\right)^x$

(e) $y = 10^{-x}$

(h) $y = 2^{x-1}$

(c) $y = 4^x$

(f) $y = 2^x - 3$

(i) $y = 2^{x+1}$

3. Resolva as seguintes equações exponenciais:

(a) $2^x = 64$

(g) $\left(\frac{1}{5}\right)^x = 125$

(m) $(\sqrt[5]{4})^x = \frac{1}{\sqrt{8}}$

(b) $8^x = \frac{1}{32}$

(h) $(\sqrt[3]{2})^x = 8$

(n) $100^x = 0,001$

(c) $(\sqrt{3})^x = \sqrt[3]{81}$

(i) $(\sqrt[4]{3})^x = \sqrt[3]{9}$

(o) $8^x = 0,25$

(d) $2^x = 128$

(j) $9^x = 27$

(p) $125^x = 0,04$

(e) $3x = 243$

(k) $4^x = \frac{1}{8}$

(q) $\left(\frac{2}{3}\right)^x = 2,25$

(f) $2^x = \frac{1}{16}$

(l) $\left(\frac{1}{125}\right)^x = 25$

4. Resolva as seguintes inequações exponenciais:

(a) $2^x > 128$

(b) $\left(\frac{3}{5}\right)^x \geq \frac{125}{27}$

(c) $(\sqrt[3]{2})^x < \sqrt[4]{8}$

(d) $2^x < 32$

(e) $\left(\frac{1}{3}\right)^x > \frac{1}{81}$

(f) $3^x < \frac{1}{27}$

(g) $\left(\frac{1}{5}\right)^x \geq 125$

(h) $(\sqrt[3]{3})^x \leq \frac{1}{16}$

(i) $4^x \geq 8$

(j) $\left(\frac{1}{9}\right)^x \leq 243$

(k) $(\sqrt[5]{25})^x < \frac{1}{\sqrt[4]{125}}$

(l) $(0,01)^x \leq \frac{1}{\sqrt{1000}}$

(m) $(0,008)^x > \sqrt[3]{25}$

(n) $(0,16)^x > \sqrt[5]{15,625}$