17/05/24

João Pedro Carvalho Ferreira 2024.1.08.030

Exercícios Propostos: (página 126)

1. a) $2^x = 16$

$2^x = 2^4$

$x = 4$

b) $25^x = 125$

$(5^2)^x = 5^3$

$2x = 3$

$x = \frac{3}{2}$

c) $9^x = \frac{1}{3}$

$9^x = 3^{-1}$

$(3^2)^x = 3^{-1}$

$2x = -1$

$x = -\frac{1}{2}$

d) $49^x = \sqrt{7}$

$(7^2)^x = 7^{\frac{1}{2}}$

$2x = \frac{1}{2}$

$x = \frac{\frac{1}{2}}{2}$

$x = \frac{1}{4}$

e) $25^{x+2} = 1$

$25^{x+2} = 25^0$

$x + 2 = 0$

$x = -2$

f) $5^{x^2+2x} = 1$

$5^{x^2+2x} = 5^0$

$x^2 + 2x = 0$

$\Delta = 2^2 - 4.1.0$

$\Delta = 4$

$x = \frac{-(2) \pm \sqrt{4}}{2.1}$

$x = \frac{-2 \pm 2}{2}$

$x_1 = 0$

$x_2 = -2$

g) $(2^x)^{x-1} = 4$

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

$x(x-1) = 2$

$x^2 - x - 2 = 0$

$\Delta = (-1)^2 - 4.1(-2)$

$\Delta = 1 + 8$

$\Delta = 9$

$x = \frac{-(-1) \pm \sqrt{9}}{2.1}$

$x = \frac{1 \pm 3}{2}$

$x_1 = 2$

$x_2 = -1$

h) $3^{2x-1} \cdot 9^{3x+4} = 27^{x+1}$

$3^{2x-1} \cdot (3^2)^{3x+4} = (3^3)^{x+1}$

$2x - 1 + 6x + 8 = 3x + 3$

$8x + 7 - 3x - 3 = 0$

$5x = 3 - 7$

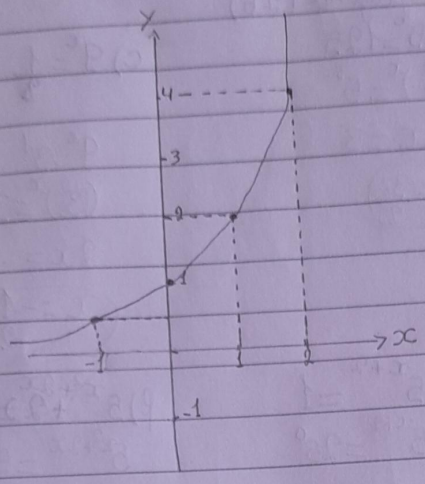
$5x = -4$

$x = -\frac{4}{5}$

Exercícios Propostos: (página 197)

1. a) $f(x) = 2^x$

x	y
0	1
-1	$\frac{1}{2}$
1	2
2	4



b) $f(x) = \left(\frac{1}{2}\right)^x$

x	y
0	1
-1	2
1	$\frac{1}{2}$
2	$\frac{1}{4}$