

EXERCÍCIOS

① Resolva as equações biquadradas no universo dos reais.

$$a, x^4 - 5x^2 + 4 = 0 \quad S = \{ \pm 1, \pm 2 \}$$

$$b, x^4 + 2x^2 + 7 = 0 \quad S = \{ \}$$

$$c, 2x^4 - x^2 - 15 = 0 \quad S = \{ \pm \sqrt{3} \}$$

$$d, 4x^4 - 5x^2 + 1 = 0 \quad S = \{ \pm \frac{1}{2}, \pm 1 \}$$

$$e, 8x^4 - 7x^2 + 5 = 0 \quad S = \emptyset$$

$$f, 2x^4 - 3x^2 - 20 = 0 \quad S = \{ \pm 2 \}$$

$$g, x^4 - 25x^2 = 0 \quad S = \{ 0, \pm 5 \}$$

$$h, x^4 - 9 = 0 \quad S = \{ \pm \sqrt{3} \}$$

② Resolva as equações biquadradas

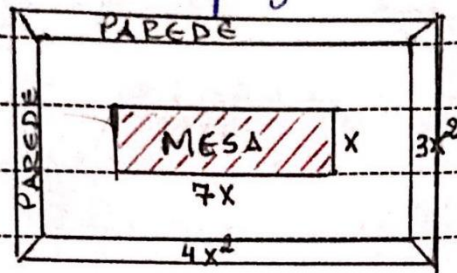
$$a, (x^2 + 1)^2 + 50 = 15(x^2 + 1) \quad S = \{ \pm 2, \pm 3 \}$$

$$b, (2x^2 - 5)^2 = 10(2x^2 - 5) + 39 \quad S = \{ \pm 1, \pm 3 \}$$

$$c, (x^2 + 6)^2 - 17(x^2 + 6) + 70 = 0 \quad S = \{ \pm 1, \pm 2 \}$$

$$d, x^2(x^2 - 10) + 9 = (x+1)(x-1) \quad S = \{ \pm 1, \pm \sqrt{10} \}$$

③ Considere a figura:



Determine as dimensões da sala e da mesa retangular, sabendo que o espaço que deve sobrar entre a mesa e as paredes da sala é de 5m^2 .

Exercícios

① Determine o conjunto solução das Equações Fracionárias.

$$a, \frac{1}{x} + \frac{5}{x^2} = 6 \quad S = \{1; 5/6\}$$

$$b, x + \frac{1}{x-4} = 6 \quad S = \{5\}$$

$$c, \frac{x-1}{x+1} = 1 + \frac{x}{x-2} \quad S = \{-4; 1\}$$

$$d, \frac{1}{x-2} + \frac{1}{x+2} = \frac{3-x^2}{x^2-4} \quad S = \{-3; 1\}$$

$$e, \frac{2}{x} + \frac{1}{x-3} = \frac{6}{x^2-9} \quad S = \{-2\}$$

$$f, \frac{1}{x^2-2x} + \frac{2}{x^2-3x+2} = \frac{3}{x^2-x} \quad S = \emptyset$$

$$g, \frac{3x+1}{(x-1)(x-2)} + \frac{x+6}{x^2-5x+6} = \frac{2x+6}{x^2-4x+3} \quad S = \{3/2\}$$

$$h, \frac{x-3}{x+2} + \frac{x}{2(x+3)} = \frac{3x}{x^2+5x+6} \quad S = \{1,8; 3,2\}$$

$$i) \frac{3x-1}{x^2-2x} + \frac{2x+3}{x^2-6x+8} - \frac{2x+3}{x^2-4x} \quad S = \{1/3\}$$

$$j) \frac{7x-5}{6x^3+6x^2-6x-6} - \frac{3}{x^2-1} = \frac{1}{x^2+x} - \frac{2}{x^2-x} \quad S = \{9/5, 2\}$$

$$k) \frac{1}{x^4} - \frac{5}{x^2} + 4 = 0 \quad S = \{\pm 1/2, \pm 1\}$$

$$l) x^2 = 2 + \frac{6}{x^2-1} \quad S = \{\pm 2\}$$

$$m) \frac{1}{x^2-4} - \frac{1}{x^4} = \frac{6}{x^4(x^2-4)} \quad S = \{\pm \sqrt{2}\}$$

$$n) \frac{x^2}{x^2-1} + \frac{x^2}{x^2-4} = \frac{x^4-4}{(x^2-1)(x^2-4)} \quad S = \{ \}$$

Exercícios

① Resolva as equações irracionais.

a, $\sqrt{2x+5} - 3 = 0$

$S = \{2\}$

b, $\sqrt[3]{-2x-1} - 2 = 0$

$S = \{-9/2\}$

c, $\sqrt[4]{x-2} = 2$

$S = \{18\}$

d, $\sqrt{6+x} = x$

$S = \{3\}$

e, $1 + \sqrt{x+1} = x$

$S = \{3\}$

f, $2 + \sqrt[3]{2x^2-8x} = 0$

$S = \{2\}$

g, $x = \sqrt[4]{5x^2-4}$

$S = \{1, 2\}$

h, $\sqrt{(x^2-5)^2-12} - 2 = 0$

$S = \{\pm 1, \pm 3\}$

i, $\sqrt{5+\sqrt{x+1}} = 3$

$S = \{15\}$

j, $\sqrt{x-6} + 3 = \sqrt{x+9}$

$S = \{7\}$

k, $\sqrt[3]{\sqrt{3x+1}} - 2 = 0$

$S = \{25\}$

L, $\sqrt{2x+1} = \sqrt{x} + 1$

$S = \{0, 4\}$

m, $\sqrt{3x+1} - \sqrt{x+4} = 1$

$S = \{5\}$

$$n, \sqrt{x - \sqrt{x+2}} = 2$$

$$S = \{7\}$$

$$o, \sqrt{3x+1} - \sqrt{2x-7} = 2$$

$$S = \{8, 16\}$$

$$p, \sqrt{x+2} + \sqrt{2x} - 4 = 0$$

$$S = \{2\}$$

$$q, \sqrt[3]{24 + \sqrt{x}} - \sqrt[3]{5 + \sqrt{x}} = 1$$

$$S = \{9\}$$

$$r, x^2 + \sqrt{x^2 + 20} = 22$$

$$S = \{\pm 4\}$$

$$s, \sqrt{x^2 + x + 7} + \sqrt{x^2 + x + 2} = \sqrt{3x^2 + 3x + 19}$$

$$S = \{-2, 1\}$$

$$t, 4(\sqrt{1+x} - 1)(\sqrt{1-x} + 1) = x$$

$$S = \{0\}$$

$$u, \sqrt[4]{78 + \sqrt[3]{24 + \sqrt{x}}} - \sqrt[4]{84 - \sqrt[3]{30 - \sqrt{x}}} = 0$$

$$S = \{9\}$$

$$v, \sqrt{x} + \frac{4}{\sqrt{x}} = 4$$

$$S = \{4\}$$

$$x, \frac{1}{x - \sqrt{x^2 - x}} - \frac{1}{x + \sqrt{x^2 - x}} = \sqrt{3}$$

$$S = \{4\}$$

$$z, \sqrt{\frac{20+x}{x}} + \sqrt{\frac{20-x}{x}} = \sqrt{6}$$

$$S = \{12\}$$