Bruchgleichungen lösen

Lösungsblatt

1. $\frac{x+2}{2}-3=\frac{x+2}{7}$ / . 14

(x + 2).7 – 3 . 14 = (x + 2).2
7.x + 14 – 42 = 2.x + 4
7.x – 28 = 2.x + 4 / - 2.x
5.x - 28 = 4 / + 28
5.x = 32 / : 5
x = 6,4

Probe : x = 6,4

$\frac{x+2}{2}-3=\frac{x+2}{7}$

$\frac{6,4+2}{2}-3=\frac{6,4+2}{7}$

4,2 – 3 = 1,2
1,2 = 1,2 ; w. A

2. $\frac{4-x}{x-6}-\frac{48}{x^2-36}=\frac{1-x}{x+6}$ / . (x² - 36)

(4 – x).(x + 6) – 48 = (1 – x).(x – 6)
4.x - x² + 24 – 6.x – 48 = x – x² - 6 + 6.x
- x² -2.x – 24 = - x² + 7.x – 6 / + x²
-2.x - 24 = 7.x – 6 / + 2.x
- 24 = 9.x – 6 / + 6
- 18 = 9.x / : 9
x = - 2

Probe : x = - 2

$\frac{4-(-2)}{(-2)-6}-\frac{48}{(-2)^2-36}=\frac{1-(-2)}{(-2)+6}$

$\frac{6}{-8}-\frac{48}{-32}=\frac{3}{4}$ / . 32

-(6.4) + 48 = 24
24 = 24 ; w. A

3. $\frac{x+4}{x^2-1}=\frac{5}{x-1}-\frac{3}{x+1}$ / . (x² - 1)

x + 4 = 5.(x + 1) – 3.(x – 1)
x + 4 = 5.x + 5 – 3.x + 3
x + 4 = 2.x + 8 / - x
+ 4 = x + 8 / - 8
x = - 4

Probe : x = - 4

$\frac{(-4)+4}{(-4)^2-1}=\frac{5}{(-4)-1}-\frac{3}{(-4)+1}$

$\frac{0}{15}=\frac{5}{(-4)-1}-\frac{3}{(-4)+1}$

0 = - 1 + 1
0 = 0 ; w. A

4. $\frac{x+2}{4.x+14}=\frac{x-2}{4x+2}$ / . (4x+14).(4x+2)

(x + 2).(4x + 2) = (x – 2).(4x + 14)
4x² + 8x + 2x + 4 = 4x² - 8x +14 x – 28 / - 4x²
10x + 4 = 6x – 28 / - 6x
4x + 4 = - 28 / - 4
4x = - 32 / : 4
x = - 8

Probe : x = - 8

$\frac{(-8)+2}{4.(-8)+14}=\frac{(-8)-2}{4(-8)+2}$

$\frac{-6}{-18}=\frac{-10}{-30}$

3 = 3 ; w. A

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