

Bruchgleichungen

Bestimmen Sie die Definitions- und Lösungsmengen zu den angegebenen Bruchgleichungen.

z.B.

$$\begin{array}{rcl} \frac{1}{x} & = & \frac{5}{x-1} & \Rightarrow \mathbb{D} = \mathbb{R} \setminus \{0; 1\} \\ \frac{1}{x} & = & \frac{5}{x-1} & | \cdot x(x-1) \\ x-1 & = & 5x & | -x \\ -1 & = & 4x & | :4 \\ -\frac{1}{4} & = & x & \Rightarrow \mathbb{L} = \left\{ -\frac{1}{4} \right\} \end{array}$$

Aufgaben:

1.

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

2.

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

3.

$$\frac{1}{x} = \frac{3}{8}$$

4.

$$\frac{4}{3x} = 7$$

5.

$$\frac{32}{15a} = \frac{16}{45}$$

6.

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

7.

$$\frac{4}{5x-6} = 0$$

8.

$$\frac{1}{x} = \frac{1}{2x-7}$$

9.

$$\frac{38}{8x-11} = \frac{2}{x-11}$$

10.

$$\frac{5x + 6}{3x - 8} = 1$$

11.

$$\frac{24x - 1}{1 - 36x} = -\frac{3}{5}$$

12.

$$\frac{x + 2}{8x - 8} = \frac{x - 3}{8x - 32}$$

13.

$$\frac{5-x}{x+5} = \frac{3-x}{x+3}$$

14.

$$\frac{7x+5}{15x-11} = \frac{7x-5}{15x-27}$$

15.

$$\frac{2x+4}{x^2+2x} \cdot \frac{5x}{8-2x^2} = -1$$

16.

$$\left(\frac{x}{2} - \frac{2}{x}\right) \cdot \frac{x-2}{x+2} = \frac{x}{2} \left(\frac{4}{x} - \frac{12}{x^2}\right)$$

17.

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

(1)