$$\frac{2}{5x} - \frac{3}{4} + \frac{5}{12} - \frac{7}{6} = \frac{4}{15x} - \frac{9}{10} \quad | \cdot 60x$$

$$24 - 45x + 25x - 70x = 16 - 54x \quad | \, T$$

$$24 - 90x = 16 - 54x \quad | + 90x - 16$$

$$8 = 36x \quad | : 36$$

$$x = 8/36 = 2/9$$

$$\frac{-\frac{0{,}5}{5} - \frac{1}{2yx}}{\frac{xy}{5} + 2 + \frac{5}{xy}} = \frac{\frac{-xy - 5}{10xy}}{\frac{(xy)^2 + 10xy + 25}{5xy}} = -\frac{\cancel{xy+5}}{\cancel{10}xy_{\,2}} \cdot \frac{\cancel{5xy}}{(xy+5)^{\cancel{2}}}$$

$$= \frac{-1}{2xy + 10}$$

1) $\sqrt{x^3 \sqrt[4]{x^6 \sqrt[3]{x^2}}} = \left(x^3\left(x^6\left(x^2\right)^{\frac{1}{3}}\right)^{\frac{1}{4}}\right)^{1/2}$

$x^{3/2} \quad x^{6 \cdot \frac{1}{4} \cdot \frac{1}{2}} \cdot x^{2 \cdot \frac{1}{3} \cdot \frac{1}{4} \cdot \frac{1}{2}}$

$x^{3/2} \cdot x^{3/4} \cdot x^{1/12} = x^{\frac{18+9+1}{12}} = x^{28/12} = x^{7/3}$

$$\frac{\left(2^3 u^2 v^{-2} w\right)^4}{\left(3^4 r^{-3} s^{-2} t^3\right)^2} \cdot \frac{\left(2^4 u^3 v^{-4} w^{-2}\right)^{-3}}{\left(3^4 r^{-3} s^4 t^3\right)^{-2}}$$

Klammern auflösen

$$\frac{2^{12} u^8 v^{-8} w^4 \; 2^{-12} u^{-9} v^{12} w^6}{3^8 r^{-6} s^{-4} t^6 \; 3^{-8} r^6 s^{-8} t^{-6}}$$

Exponenten positiv

$$\frac{2^{12} 3^8 u^8 w^4 v^{12} w^6 r^6 s^4 s^8 t^6}{2^{12} 3^8 v^8 u^9 t^6 r^6} = \frac{w^{10} v^4 s^{12}}{u}$$

$$\frac{\sqrt[k]{a^{2-k}}}{\left(\sqrt[k]{a}\right)^{3k-4}} \cdot \left[\frac{\sqrt[k]{a}}{\left(\sqrt[k]{a^{2}}\right)^{k+3}}\right]^{-2}$$

$$\frac{a^{\frac{2-k}{k}}}{a^{\frac{3k-4}{k}}} \cdot \frac{\left(a^{2/k}\right)^{2k+6}}{a^{2/k}}$$

$$a^{\frac{2-k}{k} - \frac{3k-4}{k} + \frac{4k+12}{k} - \frac{2}{k}}$$

$$a^{\frac{2-k-3k+4+4k+12-2}{k}} = a^{16/k} = \sqrt[k]{a^{16}}$$