

Dělení lomených výrazů

od 23. 11.

24. 11.

25. 11.

26. 11.

27. 11.

- dělíme jako kromky (t.j. převedeme dělení na násobení tak, že PŘEVŘÁTÍME DĚLITELE), pak upravíme KRÁTÍME

8. 11. 88:

45/1

$$a) \frac{4x}{y} : \frac{2}{y} = \frac{4x}{\cancel{y}} \cdot \frac{\cancel{y}}{2} = \frac{2x}{1} = 2x \quad y \neq 0$$

$$b) -\frac{3x}{15y} : \frac{35y}{21x} = -\frac{3x}{\cancel{15y}^5} \cdot \frac{\cancel{21x}^7}{35y} = -\frac{3x^2}{25y^2}$$

 $x \neq 0$ $y \neq 0$

ne mluví

je chyba,
ne zjednoduší

$$c) -\frac{8x^2}{5y} : \frac{6x}{15y} = -\frac{8x^2}{\cancel{5y}^1} \cdot \frac{\cancel{15y}^3}{6x} = -\frac{4x}{1} = -4x \quad x \neq 0$$

 $y \neq 0$

$$d) \frac{10x^3}{y^2} : \left(-\frac{2x}{y}\right) = -\frac{10x^3}{y^2} \cdot \frac{y}{\cancel{2x}^1} = -\frac{5x^2}{y} \quad x \neq 0$$

 $y \neq 0$

45/2

$$a) 2 : \frac{3}{x} = \frac{2}{1} \cdot \frac{x}{3} = \frac{2x}{3} \quad x \neq 0$$

$$b) 4x : \frac{1}{2x^2} = \frac{4x}{1} \cdot \frac{2x^2}{1} = \frac{8x^3}{1} = 8x^3 \quad x \neq 0$$

$$d) 10x^2y : \left(-\frac{5x}{y^2}\right) = -\frac{10x^2y}{1} \cdot \frac{y^2}{\cancel{5x}^1} = -\frac{2xy^3}{1} = -2xy^3$$

ne zjednoduší
druhá metoda $x \neq 0$
 $y \neq 0$

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45/3

$$a) \frac{12ab^2}{7c} : \frac{8a^2f^2}{28c^2} = \frac{\overset{3}{\cancel{12}}ab^2}{\underset{1}{\cancel{7}}c} \cdot \frac{\overset{4}{\cancel{28}}c^2}{\overset{2}{\cancel{8}}a^2f^2} = \frac{6c}{a} \quad \begin{array}{l} a \neq 0 \\ b \neq 0 \\ c \neq 0 \end{array}$$

$$d) -\frac{8b^2c}{9a} : \left(-\frac{64b^2}{24ac}\right) = \frac{\overset{1}{\cancel{8}}b^2c}{\underset{3}{\cancel{9}}a} \cdot \frac{\overset{3}{\cancel{24}}ac}{\overset{8}{\cancel{64}}b^2} = \frac{c^2}{3} \quad \begin{array}{l} a \neq 0 \\ b \neq 0 \\ c \neq 0 \end{array}$$

46/4 "ilustrace"

$$a) \frac{28a^2}{9b} : \left(\frac{2a}{3b}\right)^2 = \frac{28a^2}{9b} : \frac{4a^2}{9b^2} = \frac{\overset{7}{\cancel{28}}a^2}{\underset{1}{\cancel{9}}b} \cdot \frac{\overset{1}{\cancel{9}}b^2}{\overset{1}{\cancel{4}}a^2} = \frac{7b}{1} = 7b \quad \begin{array}{l} a \neq 0 \\ b \neq 0 \end{array}$$

46/5

$$a) \frac{x-2}{2x} : \frac{2x-4}{6x^2} = \frac{\cancel{x-2}}{\underset{1}{\cancel{2}}x} \cdot \frac{\overset{3}{\cancel{6}}x^2}{\cancel{2 \cdot (x-2)}} = \frac{3x}{2} \quad \begin{array}{l} x \neq 0 \\ x \neq 2 \end{array}$$

$$b) \frac{x+3}{6x} : \frac{9+3x}{-4x} = \frac{\cancel{x+3}}{\underset{3}{\cancel{6}}x} \cdot \frac{\overset{2}{\cancel{-4}}x}{\cancel{3 \cdot (3+x)}} = -\frac{2}{9} \quad \begin{array}{l} x \neq 0 \\ x \neq -3 \end{array}$$

$$c) \frac{-x^2}{1-x} : \frac{2x}{x-1} = + \frac{\cancel{x^2}}{\cancel{-1+x}} \cdot \frac{\cancel{x-1}}{2x} = \frac{x}{2} \quad \begin{array}{l} x \neq 1 \\ x \neq 0 \end{array}$$

$$d) \frac{4-x}{-5x^2} : \frac{4x-28}{-35x} = \frac{\cancel{4-x}}{\underset{1}{\cancel{-5}}x^2} \cdot \frac{\overset{1}{\cancel{35}}x}{\cancel{1 \cdot (x-4)}} = -\frac{1}{x} \quad \begin{array}{l} x \neq 0 \\ x \neq 4 \end{array}$$

46/6

$$a) \frac{p^2-1}{p-1} : \frac{p+1}{2p} = \frac{\cancel{(p+1)} \cdot \cancel{(p-1)}}{\cancel{p-1}} \cdot \frac{2p}{\cancel{p+1}} = \frac{2p}{1} = 2p$$

 $p \neq 0$
 $p \neq 1$ $p \neq -1$

$$b) \frac{2+p}{p^2-4} : \frac{3p}{p-2} = \frac{2+p}{(\cancel{p+2}) \cdot \cancel{(p-2)}} \cdot \frac{\cancel{p-2}}{3p} =$$

$$= \frac{1}{3p}$$

 $p \neq 2$
 $p \neq -2$
 $p \neq 0$

$$c) -\frac{4p}{p+6} : \frac{6-p}{p^2-36} = + \frac{4p}{\cancel{p+6}} \cdot \frac{(\cancel{p+6}) \cdot (\cancel{p-6})}{-6+p} =$$

„kontrák“

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

 $p \neq 6$
 $p \neq -6$

$$d) \frac{(p+1)^2}{p^2-1} : \frac{p+1}{p-1} = \frac{\cancel{(p+1)}^2}{(\cancel{p+1}) \cdot \cancel{(p-1)}} \cdot \frac{\cancel{p-1}}{\cancel{p+1}} = \frac{1}{1} = 1$$

 $p \neq 1$
 $p \neq -1$

46/7

$$a) \frac{u+v}{u^2-v^2} : \frac{2u}{(u-v)^2} = \frac{\cancel{v+u}}{(\cancel{u+v}) \cdot \cancel{(u-v)}} \cdot \frac{(u-v)^2}{2u} =$$

$$= \frac{u-v}{2u}$$

 $u \neq 0$
 $u \neq v$
 $u \neq -v$

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$$b) \frac{u^2 - v^2}{v - u} : \frac{v + u}{2uv} = - \frac{(\cancel{u+v}) \cdot (\cancel{u-v})}{-\cancel{v+u}} \cdot \frac{2uv}{\cancel{v+u}} =$$

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

"konstata"

$$u \neq 0$$

$$v \neq 0$$

$$u \neq v$$

$$u \neq -v$$

$$c) \frac{u^2 + uv}{u^2} : \frac{u^2 - v^2}{u - v} = \frac{u \cdot (\cancel{u+v})}{u^2} \cdot \frac{\cancel{u-v}}{(\cancel{u+v}) \cdot (\cancel{u-v})} = \frac{1}{u}$$

re zjednotiť

chýť podmienku $u \neq 0$

$$u \neq v$$

$$u \neq -v$$

$$d) \frac{uv + v^2}{-u^2 + uv} : \frac{u^2 + uv}{(u - v)^2} = - \frac{v \cdot (\cancel{u+v})}{u \cdot (\cancel{u+v})} \cdot \frac{(u - v)^2}{u \cdot (\cancel{u+v})} =$$

"konstata"

$$= - \frac{v \cdot (u - v)}{u^2}$$

$$u \neq 0$$

$$u \neq v$$

$$u \neq -v$$