Upravte výrazy, uveďte podmienky, kedy má výraz zmysel

1.

a) $\left[\left(\frac{x}{y}-\frac{y}{x}\right):\left(\frac{x}{y}+\frac{y}{x}-2\right)\right]\cdot\left(1+\frac{x}{y}\right)=$

b) $\left(1+t-\frac{1}{1-t}\right):\left(t-\frac{t^2}{t-1}\right)=$

c) $\left(x^2-1\right)\cdot\left(\frac{1}{x-1}-\frac{1}{x+1}-1\right)=$

d) $\left(\frac{9}{m^2}-\frac{m^2}{9}\right)\cdot\frac{m^2+m}{m^2-2m-3}=$

e) $\left(\frac{1}{m^2}-\frac{1}{4}\right)\cdot\frac{m^3}{m^2-4m+4}=$

f) $\left(\frac{1}{a+1}-\frac{1}{a-1}\right):\frac{a}{4-4a^2}=$

2.

a) $\frac{x^2-7}{x+7}\cdot\frac{x^2-49}{7-x}\cdot\frac{x-2}{2x^2-14}=$

b) $\frac{a^2+2a-b(a+2)}{3a^2+12a+12}\cdot\frac{24-6a^2}{2a-2b}=$

c) $\frac{2x}{2x-5}:\frac{5x^2}{25-4x^2}=$

d) $\frac{m^2-3m}{3m^2+18m+27}+\frac{1}{m+3}=$

e) $\frac{1+m}{2m^2+8m+8}+\frac{1-m}{2m^2-8}=$

f) $\frac{x}{x-y}+\frac{xy}{y^2-x^2}=$

g) $\frac{x}{x-2}-\frac{x}{x+2}-\frac{x+3}{x^2-4}=$

h) $\frac{a}{a+b}-\frac{b}{b-a}-\frac{2ab}{a^2-b^2}=$

i) $\frac{2b}{a^2+ab}-\frac{2a}{b^2+ab}=$

j) $\frac{1}{x^2-x}+\frac{1}{x^2-1}-\frac{2}{x^2+x}=$

k) $\frac{1}{y-1}+\frac{2}{y^2-2y+1}+\frac{1}{(y-1)^3}=$

l) $\frac{y^2}{x^3-xy^2}+\frac{2}{x+y}+\frac{1}{x}=$

3.

a) $\frac{\frac{x-y}{x+y}+\frac{x+y}{x-y}}{\frac{x}{y}+\frac{y}{x}}=$

b) $\frac{\frac{1}{(a+b)^2}-\frac{1}{(a-b)^2}}{\frac{1}{a+b}+\frac{1}{a-b}}=$

c) $\frac{1-\frac{x}{x-2y}}{\frac{x^2}{4y^2-x^2}+1}=$

Vysl.

1. a) $\frac{x-y}{y}$ b) -t c) $3-x^2$ d) $\frac{-(3+m)(9+m^2)}{9m}$

   e) $\frac{-m(m+2)}{4(m-2)}$ f) $\frac{8}{a}$

2. a) $\frac{x+2}{2}$ b) $2-a$ c) $\frac{-2(5+2x)}{5x}$ d) $\frac{m^2+9}{3(m+3)^2}$

   e) $\frac{m}{(2-m)(m+2)^2}$ f) $\frac{x^2}{x^2-y^2}$ g) $\frac{3x-3}{x^2-4}$ h) $\frac{a-b}{a+b}$

   i) $\frac{2(b-a)}{ab}$ j) $\frac{3}{x(x^2-1)}$ k) $\frac{y^2}{(y-1)^3}$ l) $\frac{3x-2y}{x^2-y^2}$

3. a) $\frac{2xy}{x^2-y^2}$ b) $\frac{-2b}{a^2-b^2}$ c) $\frac{-(2y+x)}{2y}$