6. **Zjednodušte** a uveďte, kdy má výraz smysl. ~~Určete jeho hodnotu pro $a = -2$, $b = 1$.~~

$$\left(\frac{a}{b}\right)^2\cdot\frac{2a^2}{b^4} = \frac{a^2}{b^2}\cdot\frac{2a^2}{b^4} = \underline{\underline{\frac{2a^4}{b^6}}} \qquad \boxed{b\neq 0}$$

$$\frac{(a-1)^2}{1-b}\cdot\frac{b-1}{1+a} = \frac{(a-1)(a-1)}{\cancel{1-b}}\cdot\frac{(-1)\cancel{(1-b)}}{1+a} = \underline{\underline{\frac{(-1)(a-1)(a-1)}{1+a}}} \qquad \boxed{\begin{array}{l} b\neq 1\\ a\neq -1\end{array}}$$

$$\left(\frac{a^2}{-b}\right)^2\cdot\left(-\frac{2b}{4a}\right)^3 = \frac{a^{\cancel{4}}}{\cancel{b^2}}\cdot\left(-\frac{\cancel{8}^{1}b^{\cancel{3}}}{\cancel{64}_{8}\cancel{a^3}}\right) = \underline{\underline{-\frac{ab}{8}}} \qquad \boxed{\begin{array}{l} a\neq 0\\ b\neq 0\end{array}}$$

$$\frac{4a^2+8a+4}{ab^2-b}\cdot\frac{1-ab}{4a+4} = \frac{4\cdot(a^2+2a+1)}{b(ab-1)}\cdot\frac{1-ab}{4(a+1)} = \frac{\cancel{4}\cdot(a+1)^{\cancel{2}}}{b\cdot\cancel{(ab-1)}}\cdot\frac{(-1)\cancel{(ab-1)}}{\cancel{4}\cancel{(a+1)}} = \underline{\underline{\frac{(-1)(a+1)}{b}}}$$

$$\boxed{\begin{array}{l|l} b\neq 0 & a\neq \frac{1}{b}\\ a\neq -1 & \end{array}} \rightarrow \begin{array}{l} ab-1=0\\ ab=1 \;/:b\\ a=\frac{1}{b}\end{array}$$

7. Zjednodušte výrazy a ~~výsledky ověřte pro dané hodnoty proměnných: $a = -1$, $b = 2$, $c = -1$.~~

$$\frac{ab+b^2}{9}\cdot\frac{-3a}{b^2} = \frac{\cancel{b}(a+b)}{\cancel{9}_{3}}\cdot\frac{-\cancel{3}^{1}a}{b^{\cancel{2}}} = \underline{\underline{\frac{-a(a+b)}{3b}}} \qquad \boxed{b\neq 0}$$

$$\frac{a-ab}{c-ac}\cdot\frac{ac-c}{ab-a} = \frac{\cancel{a}(1-b)}{\cancel{c}(1-a)}\cdot\frac{\cancel{c}(a-1)}{\cancel{a}(b-1)} = \frac{\cancel{(1-b)}}{\cancel{(1-a)}}\cdot\frac{(-1)\cancel{(1-a)}}{(-1)\cancel{(1-b)}} = \underline{\underline{1}} \qquad \boxed{\begin{array}{l|l} a\neq 1 & a\neq 0\\ b\neq 1 & c\neq 0\end{array}}$$

$$\frac{a^2-ab}{b}\cdot\frac{ab+b^2}{a} = \frac{\cancel{a}(a-b)}{\cancel{b}}\cdot\frac{\cancel{b}(a+b)}{\cancel{a}} = (a-b)(a+b) = \underline{\underline{a^2-b^2}} \qquad \boxed{\begin{array}{l} a\neq 0\\ b\neq 0\end{array}}$$

$$\frac{a^3-a^2}{b^3-ab^2}\cdot\frac{a-b}{a-a^2} = \frac{a^{\cancel{2}}(a-1)}{b^2(b-a)}\cdot\frac{a-b}{\cancel{a}(1-a)} = \frac{a\cancel{(a-1)}}{b^2\cancel{(b-a)}}\cdot\frac{\cancel{(-1)}\cancel{(b-a)}}{\cancel{(-1)}\cancel{(a-1)}} = \underline{\underline{\frac{a}{b^2}}} \qquad \boxed{\begin{array}{l|l} a\neq 0 & a\neq 1\\ b\neq 0 & a\neq b\end{array}}$$

1. **Zjednodušte výrazy.**

$\frac{p}{q^3}:\frac{p^2}{q}= \frac{\cancel{p}}{\cancel{q^3}_2}\cdot\frac{\cancel{q}}{\cancel{p^2}}=\underline{\frac{1}{pq^2}}$ $\boxed{\begin{matrix}p\neq 0\\ q\neq 0\end{matrix}}$

$\frac{2a}{3b}:\frac{4a}{6b^2}=\frac{\cancel{2a}}{\cancel{3b}_1}\cdot\frac{\cancel{6}^{2}b\cancel{b}}{\cancel{4a}_2}=\frac{\cancel{2}b}{\cancel{2}}=\underline{b}$ $\boxed{\begin{matrix}a\neq 0\\ b\neq 0\end{matrix}}$

$\frac{-6a^2b}{3c}:\frac{3ab}{2c^2}=\frac{-\cancel{6}^{2}a\cancel{a}\cancel{b}}{3\cancel{c}}\cdot\frac{2c\cancel{c}}{\cancel{3}_1\cancel{a}\cancel{b}}=\underline{\frac{-4ac}{3}}$ $\boxed{\begin{matrix}a\neq 0\\ b\neq 0\\ c\neq 0\end{matrix}}$

$\frac{k^2l}{3m}:\frac{6k}{m^2}=\frac{k\cancel{k}l}{3m}\cdot\frac{m\cancel{m}}{6\cancel{k}}=\underline{\frac{klm}{18}}$ $\boxed{\begin{matrix}k\neq 0\\ m\neq 0\end{matrix}}$

$\frac{1}{x^2y}:\frac{2}{xy}=\frac{1}{x\cancel{x}\cancel{y}}\cdot\frac{\cancel{x}\cancel{y}}{2}=\underline{\frac{1}{2x}}$ $\boxed{\begin{matrix}x\neq 0\\ y\neq 0\end{matrix}}$

$\frac{-2u^2}{4v^2}:\frac{-u}{v}=\frac{-\cancel{2}^{1}u\cancel{u}}{\cancel{4}_2v\cancel{v}}\cdot\frac{\cancel{v}}{-\cancel{u}}=\underline{\frac{u}{2v}}$ $\boxed{\begin{matrix}u\neq 0\\ v\neq 0\end{matrix}}$

$4ab:\frac{a^2b}{3}=\frac{4\cancel{a}\cancel{b}}{1}\cdot\frac{3}{a\cancel{a}\cancel{b}}=\underline{\frac{12}{a}}$ $\boxed{\begin{matrix}a\neq 0\\ b\neq 0\end{matrix}}$

$\frac{r^2s}{7s^2}:(-rs)=\frac{r\cancel{r}\cancel{s}}{7s^2}\cdot\frac{1}{-\cancel{r}\cancel{s}}=\underline{\frac{r}{7s^2}}$ $\boxed{\begin{matrix}r\neq 0\\ s\neq 0\end{matrix}}$

2. **Vydělte a určete, kdy má výraz smysl.**

$\frac{21v^3}{4u^2}:7v=\frac{\cancel{21}^{3}v\cancel{v}^{2}}{4u^2}\cdot\frac{1}{\cancel{7}_1\cancel{v}}=\underline{\frac{3v^2}{4u^2}}$ $\boxed{\begin{matrix}u\neq 0\\ v\neq 0\end{matrix}}$

$\frac{k^2+k}{k+1}:k^2=\frac{\cancel{k}(\cancel{k+1})}{\cancel{k+1}}\cdot\frac{1}{k\cancel{k}}=\underline{\frac{1}{k}}$ $\boxed{\begin{matrix}k\neq 0\\ k\neq -1\end{matrix}}$

$\frac{4xy}{3ab}:10x^2y=\frac{\cancel{4}^{2}\cancel{x}\cancel{y}}{3ab}\cdot\frac{1}{\cancel{10}_5x\cancel{x}\cancel{y}}=\underline{\frac{2}{15abx}}$ $\boxed{\begin{matrix}a\neq 0 & x\neq 0\\ b\neq 0 & y\neq 0\end{matrix}}$

$14m^2n^2:\frac{10m^3}{3n}=\frac{\cancel{14}^{7}\cancel{m^2}n^2}{1}\cdot\frac{3n}{\cancel{10}_2m\cancel{m^2}}=\underline{\frac{21n^3}{2m}}$ $\boxed{\begin{matrix}m\neq 0\\ n\neq 0\end{matrix}}$

$\frac{3(x+1)}{x^2y}:\frac{2x+2}{3}=\frac{3(\cancel{x+1})}{x^2y}\cdot\frac{3}{2(\cancel{x+1})}=\underline{\frac{9}{2x^2y}}$ $\boxed{\begin{matrix}x\neq 0 & x\neq -1\\ y\neq 0 & \end{matrix}}$

$\frac{r+s}{r}:\frac{r^2+rs}{4r}=\frac{\cancel{r+s}}{\cancel{r}}\cdot\frac{4\cancel{r}}{r(\cancel{r+s})}=\underline{\frac{4}{r}}$ $\boxed{\begin{matrix}r\neq 0\\ r\neq -s\end{matrix}}$

$(a-b):\frac{2a-2b}{3a}=\frac{\cancel{a-b}}{1}\cdot\frac{3a}{2(\cancel{a-b})}=\underline{\frac{3a}{2}}$ $\boxed{\begin{matrix}a\neq 0\\ a\neq b\end{matrix}}$

$(2x+8):\frac{x+4}{x^2-xy}=\frac{2(\cancel{x+4})}{1}\cdot\frac{x(x-y)}{\cancel{x+4}}=\underline{\frac{2x(x-y)}{1}}$ $\boxed{\begin{matrix}x\neq 0 & x\neq -4\\ x\neq y & \end{matrix}}$

$\frac{t-2}{1-t^2}:\frac{3t-6}{1+t}=\frac{\cancel{t-2}}{(1-t)(\cancel{1+t})}\cdot\frac{\cancel{1+t}}{3(\cancel{t-2})}=\underline{\frac{1}{3(1-t)}}$ $\boxed{\begin{matrix}t\neq 1\\ t\neq -1\\ t\neq 2\end{matrix}}$

3. **Vydělte a určete, kdy má výraz smysl.**

$$\frac{a^2-b^2}{a+b}:\frac{a-b}{a}=\frac{\cancel{(a-b)}\cancel{(a+b)}}{\cancel{a+b}}\cdot\frac{a}{\cancel{a-b}}=\underline{a}\qquad \boxed{\begin{matrix}a\neq -b\\ a\neq 0\end{matrix}}$$

$$\frac{(r+1)^2}{r-1}:\frac{r+1}{(r-1)^2}=\frac{(r+1)\cancel{(r+1)}}{\cancel{r-1}}\cdot\frac{\cancel{(r-1)}(r-1)}{\cancel{r+1}}=(r+1)(r-1)=\underline{r^2-1}\qquad \boxed{\begin{matrix}r\neq 1\\ r=-1\end{matrix}}$$

$$\frac{a^2+ab}{ab+b^2}:\frac{1}{b^2}=\frac{a\cancel{(a+b)}}{\cancel{b}\cancel{(a+b)}}\cdot\frac{\cancel{b^2}}{1}=\underline{ab}\qquad \boxed{\begin{matrix}b\neq 0\\ a\neq -b\end{matrix}}$$

$$\frac{x-2}{x^2+2x+1}:\frac{2x-4}{x+1}=\frac{\cancel{x-2}}{(x+1)^{\cancel{2}}}\cdot\frac{\cancel{x+1}}{2\cancel{(x-2)}}=\frac{1}{2(x+1)}\qquad \boxed{\begin{matrix}x\neq -1\\ x\neq 2\end{matrix}}$$

$$\frac{r^2-1}{r^2+2r+1}:\frac{1-r}{3r+3}=\frac{\cancel{(r+1)}(r-1)}{\cancel{(r+1)}^{\cancel{2}}}\cdot\frac{3\cancel{(r+1)}}{1-r}=\frac{r-1}{1-r}=\frac{\cancel{r-1}}{(-1)\cancel{(r-1)}}=\underline{-1}\qquad \boxed{\begin{matrix}r\neq 1\\ r\neq -1\end{matrix}}$$

4. **Zjednodušte a určete, kdy má výraz smysl.**

$$\frac{a^2-n^2}{(a+n)^2}:\frac{n-a}{4a+4n}=\frac{\cancel{(a+n)}(a-n)}{\cancel{(a+n)}\cancel{(a+n)}}\cdot\frac{4\cancel{(a+n)}}{n-a}=\frac{4\cdot(a-n)}{(n-a)}=\frac{4\cancel{(a-n)}}{(-1)\cancel{(a-n)}}=\underline{-4}\qquad \boxed{\begin{matrix}a\neq -n\\ a\neq n\end{matrix}}$$

$$\frac{-2xz}{21uv^2}:\frac{-uvx}{14u^2vx}=\frac{-2xz}{\cancel{21}\cancel{u}v^2}\cdot\frac{\overset{2}{\cancel{14}}\cancel{u^2}\cancel{v}\cancel{x}}{-\cancel{u}\cancel{v}\cancel{x}}=\underline{\frac{4xz}{3v^2}}\qquad \boxed{\begin{matrix}u\neq 0\\ v\neq 0\\ x\neq 0\end{matrix}}$$

$$\frac{15+15n}{n^2-1}:\frac{5}{n^3-n}=\frac{\overset{3}{\cancel{15}}(1+n)}{(n+1)(n-1)}\cdot\frac{n(n^2-1)}{\cancel{5}_1}=\frac{3(1+n)\cdot n\cdot\cancel{(n+1)}\cancel{(n-1)}}{\cancel{(n+1)}\cancel{(n-1)}}=\underline{3n(1+n)}\qquad \boxed{\begin{matrix}n\neq 1\\ n\neq -1\\ n\neq 0\end{matrix}}$$

$$\frac{a^2-25}{a^2+10a+25}:\frac{10-2a}{a^2+5a}=\frac{(a-5)\cancel{(a+5)}}{\cancel{(a+5)}^{\cancel{2}}}\cdot\frac{a\cancel{(a+5)}}{2(5-a)}=\frac{a\cancel{(a-5)}}{2\cdot(-1)\cdot\cancel{(a-5)}}=\underline{-\frac{a}{2}}\qquad \boxed{\begin{matrix}a\neq -5\\ a\neq 5\end{matrix}}$$

$$\frac{9x^2-18xy+9y^2}{x^2y-xy^2}:\frac{3x-3y}{x^2y}=\frac{9\cdot(x^2-2xy+y^2)}{xy(x-y)}\cdot\frac{x^2y}{3(x-y)}=\frac{\overset{3}{\cancel{9}}\cancel{(x-y)}^{\cancel{2}}}{\cancel{xy}\cancel{(x-y)}}\cdot\frac{x^{\cancel{2}}\cancel{y}}{\underset{1}{\cancel{3}}\cancel{(x-y)}}=\frac{3x}{1}=$$

$$=\underline{3x}\qquad \boxed{\begin{matrix}x\neq 0\\ y\neq 0\\ x\neq y\end{matrix}}$$

1. Upravte, určete **podmínky** platnosti.

$$\frac{\frac{4}{a}}{\frac{2}{ab}} = \frac{4}{a} : \frac{2}{ab} = \frac{\cancel{4}^{2}}{\cancel{a}} \cdot \frac{\cancel{ab}}{\cancel{2}_{1}} = \underline{\underline{2b}} \qquad \boxed{\begin{matrix} a \neq 0 \\ b \neq 0 \end{matrix}}$$

$$\frac{\frac{5x}{3y^3}}{\frac{10x^3}{3y}} = \frac{5x}{3y^3} : \frac{10x^3}{3y} = \frac{\cancel{5x}^{1}}{\cancel{3y}\,\cancel{y}^{2}} \cdot \frac{\cancel{3y}}{\cancel{10}_{2}\,x\,\cancel{x}^{2}} = \underline{\underline{\frac{1}{2x^2y^2}}} \qquad \boxed{\begin{matrix} x \neq 0 \\ y \neq 0 \end{matrix}}$$

$$\frac{\frac{r}{s^2}}{\frac{8r^4}{15s^5}} = \frac{r}{s^2} : \frac{8r^4}{15s^5} = \frac{\cancel{r}}{\cancel{s^2}} \cdot \frac{15s^{\cancel{5}\,3}}{8r^{\cancel{4}\,3}} = \frac{15s^3}{8r^3} \qquad \boxed{\begin{matrix} r \neq 0 \\ s \neq 0 \end{matrix}}$$

$$\frac{5z^2}{\frac{2z^3}{5x}} = \frac{5z^2}{1} : \frac{2z^3}{5x} = \frac{5\cancel{z^2}}{1} \cdot \frac{5x}{2z^{\cancel{3}}} = \underline{\underline{\frac{25x}{2z}}} \qquad \boxed{\begin{matrix} x \neq 0 \\ z \neq 0 \end{matrix}}$$

$$\frac{\frac{2a-6}{3b}}{\frac{ab-3b}{12b}} = \frac{2(a-3)}{3b} : \frac{b(a-3)}{12b} = \frac{2\cancel{(a-3)}}{\cancel{3b}_{1}} \cdot \frac{\cancel{12b}^{4}}{\cancel{b}\cancel{(a-3)}} = \underline{\underline{\frac{8}{b}}} \qquad \boxed{\begin{matrix} b \neq 0 \\ a \neq 3 \end{matrix}}$$

$$\frac{\frac{6a^2-24}{1-a}}{\frac{8a-16}{a-1}} = \frac{6(a^2-4)}{1-a} : \frac{8(a-2)}{a-1} = \frac{\cancel{6}^{3}\cancel{(a-2)}(a+2)}{\cancel{1-a}} \cdot \frac{(-1)\cancel{(1-a)}}{\cancel{8}_{4}\cancel{(a-2)}} = \underline{\underline{\frac{-3(a+2)}{4}}} \qquad \boxed{\begin{matrix} a \neq 1 \\ a \neq 2 \end{matrix}}$$

$$\frac{\frac{x}{y}-1}{\frac{2x-2y}{y^2}} = \frac{x-y}{y} : \frac{2(x-y)}{y^2} = \frac{\cancel{x-y}}{\cancel{y}} \cdot \frac{y^{\cancel{2}}}{2\cancel{(x-y)}} = \underline{\underline{\frac{y}{2}}} \qquad \boxed{\begin{matrix} y \neq 0 \\ x \neq y \end{matrix}}$$

$$\frac{2-\frac{2}{x}}{\frac{1}{x}-x} = \frac{2x-2}{x} : \frac{1-x}{x} = \frac{2(x-1)}{\cancel{x}} \cdot \frac{\cancel{x}}{1-x} = \frac{2(x-1)}{1-x} = \frac{2\cancel{(x-1)}}{(-1)\cancel{(x-1)}} = \underline{\underline{-2}} \qquad \boxed{\begin{matrix} x \neq 0 \\ x \neq 1 \end{matrix}}$$

$$\frac{\frac{1}{a-1}+1}{\frac{1}{a+1}-1} = \frac{1+(a-1)}{a-1} : \frac{1-(a+1)}{a+1} = \frac{1+a-1}{a-1} \cdot \frac{a+1}{1-a-1} = \frac{\cancel{a}}{a-1} \cdot \frac{a+1}{-\cancel{a}} = \underline{\underline{-\frac{a+1}{a-1}}} \qquad \boxed{\begin{matrix} a \neq 1 \\ a \neq -1 \\ a \neq 0 \end{matrix}}$$

$$\frac{\frac{b-a}{2a-b}}{\frac{a^2-b^2}{4a^2-4ab+b^2}} = \frac{b-a}{2a-b} : \frac{(a-b)(a+b)}{(2a-b)^2} = \frac{(-1)\cancel{(a-b)}}{\cancel{2a-b}} \cdot \frac{(2a-b)^{\cancel{2}}}{\cancel{(a-b)}(a+b)} = \underline{\underline{-\frac{2a-b}{a+b}}}$$

$$\boxed{\begin{matrix} b \neq 2a \\ a \neq b \\ a \neq -b \end{matrix}}$$

2. Upravte, určete **podmínky** platnosti.

$$\frac{\frac{4x^2-4}{x-1}}{\frac{(2x+2)^2}{x^2-1}} = \frac{(2x-2)(2x+2)}{x-1} : \frac{(2x+2)^2}{(x-1)(x+1)} = \frac{(2x-2)\cancel{(2x+2)}}{\cancel{x-1}} \cdot \frac{\cancel{(x-1)}(x+1)}{(2x+2)^{\cancel{2}}} = \frac{(2x-2)(x+1)}{2x+2} =$$

$$= \frac{\cancel{2}(x-1)\cancel{(x+1)}}{\cancel{2}\cancel{(x+1)}} = \underline{x-1}$$

$\boxed{\begin{matrix} x \neq 1 \\ x \neq -1 \end{matrix}}$

$$\frac{\frac{2p}{q}}{\frac{p^2q^2}{2q}} = \frac{2p}{q} : \frac{p^2q^2}{2q} = \frac{2\cancel{p}}{\cancel{q}} \cdot \frac{2\cancel{q}}{p^{\cancel{2}}q^2} = \underline{\frac{4}{pq^2}}$$

$\boxed{\begin{matrix} p \neq 0 \\ q \neq 0 \end{matrix}}$

$$\frac{\frac{1}{s}+\frac{1}{t}}{\frac{t}{s}-\frac{s}{t}} = \frac{s+t}{st} : \frac{t^2-s^2}{st} = \frac{\cancel{s+t}}{\cancel{st}} \cdot \frac{\cancel{st}}{(t-s)\cancel{(t+s)}} = \underline{\frac{1}{t-s}}$$

$\boxed{\begin{matrix} t \neq s \\ t \neq -s \end{matrix} \quad \begin{matrix} t \neq 0 \\ s \neq 0 \end{matrix}}$

$$\frac{\left(\frac{2a^2}{b}\right)^3}{\frac{(4a)^2}{b^4}} = \frac{8a^6}{b^3} : \frac{16a^2}{b^4} = \frac{\overset{1}{\cancel{8}}a^{\overset{4}{\cancel{6}}}}{\cancel{b^3}} \cdot \frac{b^{\cancel{4}}}{\underset{2}{\cancel{16a^2}}} = \underline{\frac{a^4b}{2}}$$

$\boxed{\begin{matrix} a \neq 0 \\ b \neq 0 \end{matrix}}$

$$\frac{1+\frac{n}{m}}{n-\frac{m^2}{n}} = \frac{n+m}{m} : \frac{n^2-m^2}{n} = \frac{\cancel{n+m}}{m} \cdot \frac{n}{(n-m)\cancel{(n+m)}} = \underline{\frac{n}{m(n-m)}}$$

$\boxed{\begin{matrix} n \neq m \\ n \neq -m \\ m \neq 0 \\ n \neq 0 \end{matrix}}$

$$\frac{\frac{(-3a^2)^3}{6ab}}{\frac{(-2ab)^2}{3a^2b}} = \frac{-27a^6}{6ab} : \frac{4a^2b^2}{3a^2b} = \frac{-27a^{\overset{4}{\cancel{6}}}}{\underset{2}{\cancel{6ab}}} \cdot \frac{\overset{1}{\cancel{3}}a^{\cancel{2}}\cancel{b}}{4\cancel{a^2}b^2} = \underline{-\frac{27a^5}{8b^2}}$$

$\boxed{\begin{matrix} a \neq 0 \\ b \neq 0 \end{matrix}}$

$$\frac{4-\frac{y^2}{x^2}}{6-\frac{3y}{x}} = \frac{4x^2-y^2}{x^2} : \frac{6x-3y}{x} = \frac{(2x-y)(2x+y)}{x^2} \cdot \frac{x}{3(2x-y)} =$$

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

$$= -\frac{b}{2a} - b = \underline{\frac{-b-2ab}{2a}}$$

$\boxed{\begin{matrix} a \neq 0 \\ b \neq 0 \end{matrix}}$

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

$$\rightarrow \frac{-y-x^2}{y} : \frac{(x^2-y)(x^2+y)}{y^2} = \frac{-\cancel{(y+x^2)}}{\cancel{y}} \cdot \frac{y^{\cancel{2}}}{(x^2-y)\cancel{(x^2+y)}} = \underline{\frac{-y}{x^2-y}}$$

$\boxed{y \neq 0 \quad \begin{matrix} y \neq x^2 \\ y \neq -x^2 \end{matrix}}$