Násobení lomených výrazů

∗ ….toto je symbol pro násobení

1) Násobte:

a) $\frac{3ab}{4xy} * \frac{10x^2y}{21ab^2} =$

b) $14m^2n^2 * \frac{3n}{10m^3} =$

c) $\frac{3x}{5ab} * \frac{3ay}{4bz} * \frac{4z}{9xy} =$

d) $16a^2b^3 * \left(-\frac{3ax^2}{20a^5b^4}\right) =$

e) $\left(-\frac{2p}{qs}\right) * \left(-\frac{2q}{3rs}\right) * -\frac{2p}{5s} =$

f) $\left(-\frac{3a^2}{7b}\right) * \left(-\frac{ab^2}{4}\right) * \left(-\frac{28}{3a^2b}\right) =$

2) Násobte a upravte:

a) $\frac{x^2y}{3(x+1)} * \frac{2(x+1)}{xy^2} =$

b) $\frac{a-b}{3b} * \frac{3a}{2a-2b} =$

c) $\frac{c^2+6c}{d} * \frac{d}{c} =$

d) $\frac{2m}{5m+5} * \frac{5}{7m} =$

e) $\frac{q-2}{p+q} * \frac{2p+2q}{3q-6} =$

f) $\frac{r}{r+s} * \frac{r^2+rs}{r-s} =$

g) $\frac{a^2+ab}{a} * \frac{b}{ab+b^2} =$

h) $\frac{2x+8}{x^3} * \frac{x^2-xy}{x+4} =$

i) $\frac{15+15n}{n^2-1} * \frac{n^3-n}{3n-3} =$

3) Upravte:

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

b) $\frac{x+y}{x-y} * \frac{(x-y)^2}{x^2-y^2} =$

c) $\frac{5c-5d}{4c+4d} * \frac{12c+12d}{20c-20d} =$

d) $\frac{z^2+z}{4z-12} * \frac{4z}{z+1} =$

e) $\frac{(r+1)^2}{r-1} * \frac{(r-1)^2}{r+1} =$

f) $\frac{2a^2-2b^2}{3x^2-3y^2} * \frac{9(x+y)}{4a-4b} =$

g) $\frac{a^2-ab}{ab+b^2} * \frac{a^2+ab}{ab-b^2} = \ldots\ldots\ldots \frac{a^2}{b^2}$

4) Proveďte:

a) $\frac{5-5x}{1+x} * \frac{3+3x}{10-10x} = \ldots\ldots\ldots \frac{3}{2}$

b) $\frac{2a^2}{a^2b+ab^2} * \frac{ab+b^2}{2a-4} = \ldots\ldots\ldots \frac{a}{a-2}$

c) $\frac{r^2-9}{r+1} * \frac{r^2-1}{r-3} =$

d) $\frac{m^2-mn}{m^2+mn} * \frac{m^2n+mn^2}{mn} =$

e) $\frac{4u-4v}{2uv} * \frac{u^2}{u^2-uv} =$

f) $\frac{p^2+pq}{5p^2-5q} * \frac{p^2q-q^3}{2p^2-2p} =$

5) Vypočítejte:

a) $\frac{a^2-n^2}{(a+n)^2} * \frac{4a+4n}{5(a-n)} = \ldots\ldots\ldots \frac{4}{5}$

b) $\frac{a^2-4}{1-a} * \frac{2b}{a-2} * \frac{1-a^2}{ab+2b} = \ldots . 2+2a$

c) $\frac{ax^2-ay^2}{(a+b)^2} * \frac{3a+3b}{ax^2-2axy+ay^2} =$

d) $\frac{2x^2+8x+8}{x-2} * \frac{x-4}{4(x+2)} = \ldots . \frac{(x+2)^2}{2}$

e) $\frac{z^2-1}{z^2+2z+1} * \frac{3z+3}{4z-4} =$

f) $\frac{a^2-4b^2}{a^3+a^2b} * \frac{a-b}{a^2+2ab} =$

6) Umocněte:

a) $\left(\frac{rs}{r+s}\right)^2=$

b) $\left(\frac{x+y}{x-y}\right)^2=$

c) $\left(\frac{a-1}{b+3}\right)^2=$

d) $\left(\frac{2p-q}{p+7q}\right)^2=$

e) $\left(\frac{5+m}{n-4}\right)^2=$

f) $\left(\frac{u^2+9}{7z^3}\right)^2=$

g) $\left(\frac{2a^2-10}{5a^3}\right)^2=$

h) $\left(\frac{x+y}{\frac{1}{2}}\right)^2=$

7) Umocněte:

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

b) $\left(\frac{a}{x}+\frac{b}{y}\right)^2=$

c) $\left(\frac{m}{3}+1\right)^2=$

d) $\left(\frac{m}{n}-\frac{10}{n^2}\right)^2=$

e) $\left(\frac{2x}{3y}-\frac{x}{2y}\right)^2=$

f) $\left(\frac{a}{b}\right)^2*\left(\frac{a}{c}\right)^3=$

g) $\left(r+\frac{p}{r}\right)^2=$

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

8) Vypočtěte a zjednodušte:

a) $\left(\frac{1}{a}-\frac{1}{b}\right)*(a+b)=$

b) $abc*\left(\frac{1}{a}+\frac{1}{b}+\frac{1}{c}\right)=$

c) $(r+s)*\left(1+\frac{r}{s}\right)=$

d) $\left(\frac{x}{y}-\frac{y}{x}\right)*\frac{xy}{x+y}=$

e) $\frac{m^2}{3m-3n}*\left(\frac{1}{n}-\frac{1}{m}\right)=\ldots..\frac{m}{3n}$

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

9) Vypočtěte a zjednodušte:

a) $\left(\frac{1}{x}-\frac{1}{5}\right)*(x+5)=$

b) $\left(\frac{a}{b}-1\right)*\frac{1}{a^2-b^2}=$

c) $\left(\frac{1}{x}-\frac{2y}{x^2}+\frac{y^2}{x^3}\right)*\frac{x^3}{x-y}=$

d) $(z^2-1)*\left(\frac{1}{z-1}-\frac{1}{z+1}+1\right)=$

10) Vypočtěte a zjednodušte:

a) $\frac{2x+3}{5x-1}*\left(\frac{3x-2}{3+2x}+\frac{2x+1}{2x+3}\right)=$

b) $\left(\frac{u}{u+v}+\frac{v}{u-v}\right)*\left(1-\frac{2uv}{u^2+v^2}\right)=$

c) $\left(\frac{5a}{a+b}+\frac{5b}{a-b}+\frac{10ab}{a^2-b^2}\right)*\left(\frac{a}{a+b}+\frac{b}{a-b}-\frac{2ab}{a^2-b^2}\right)=$

d) $\left(\frac{1}{ab}+\frac{1}{a}+\frac{1}{b}+1\right)*\left(\frac{1}{ab}-\frac{1}{a}-\frac{1}{b}+1\right)=$

e) $\left(\frac{c+2}{2}-\frac{c-2}{c}+\frac{c-4}{2c}\right)*\left(\frac{c}{c+1}+\frac{c}{c+1}\right)=$