Upravte výrazy

1) $\dfrac{(x+y)^{2a+1}}{(u-v)^{2a-1}}\cdot\dfrac{(u-v)^{2a+1}}{(x^2-y^2)^{2a+1}}\cdot\dfrac{(x-y)^{2a+2}}{(u-v)^2};a\in Z$

2) $\left(\dfrac{a^x+a^{-x}}{b^y+b^{-y}}\right)^{-1}\cdot\left(\dfrac{a^x-a^{-x}}{b^y-b^{-y}}\right)^2\cdot\left(\dfrac{a^{2x}-1}{b^{2y}-1}\right)^{-2}:\left(\dfrac{a^{2x}+1}{b^{2y}+1}\right)^{-1};x,y\in Z$

3) $2u-\left(\dfrac{2u-3}{u+1}-\dfrac{u+1}{2-2u}-\dfrac{u^2+3}{2u^2-2}\right)\cdot\dfrac{u^3+1}{u^2-u}$

4) $\left[\left(\dfrac{z-3}{z^2-3z+9}-\dfrac{6z-18}{z^3+27}\right):\dfrac{5z-15}{4z^3+108}\right]\cdot\left(\dfrac{1}{z-3}-\dfrac{1}{z+2}\right)$

5) $\dfrac{x+1}{2x-2}-\dfrac{x-1}{2x+2}-\dfrac{4x}{x^2-1}+\dfrac{x^2+1}{x^2-1}$

6) $\dfrac{a^4-b^4}{a^2b^2}:\left[\left(1+\dfrac{b^2}{a^2}\right)\left(1-\dfrac{2a}{b}+\dfrac{a^2}{b^2}\right)\right]$

7) $\left(\dfrac{d^{-0,5}}{d^{0,5}+1}-\dfrac{d^{-0,5}+d^{0,5}}{1-d}\right)^{-1}$

8) $\left[\dfrac{a^3-ab^2+b^3}{(a-b)^3}-\dfrac{b}{a-b}\right]\left[\dfrac{a^2-2ab+2b^2}{a^2-ab+b^2}-\dfrac{b}{a}\right]$

9) $\dfrac{\dfrac{t+1}{t+2}-\dfrac{1-t}{2-t}}{\dfrac{2t}{t^2-4}}:\dfrac{\dfrac{1}{1-t}-1}{t+\dfrac{1-2t^2}{t-1}+1}$

10) $\dfrac{\left(\dfrac{x}{y}+\dfrac{y}{x}-1\right)\left(\dfrac{x}{y}+\dfrac{y}{x}+1\right)(x^2-y^2)}{\dfrac{x^4}{y^2}-\dfrac{y^4}{x^2}}$

11) $\dfrac{\left(\dfrac{x}{y}+\dfrac{y}{x}+1\right)\left(\dfrac{1}{x}-\dfrac{1}{y}\right)^2}{\dfrac{x^2}{y^2}+\dfrac{y^2}{x^2}-\left(\dfrac{x}{y}+\dfrac{y}{x}\right)}$

12) $\left(\dfrac{(\sqrt{a}+1)^2-\dfrac{a-\sqrt{ax}}{\sqrt{a}-\sqrt{x}}}{(\sqrt{a}+1)^3-a\sqrt{a}+2}\right)^{-3}$

13) $\dfrac{1}{2}\left(\sqrt{x^2+a}+\dfrac{x^2}{\sqrt{x^2+a}}\right)+\dfrac{a}{2}\cdot\dfrac{1+\dfrac{x}{\sqrt{x^2+a}}}{x+\sqrt{x^2+a}}$

14) $\left[\left(a^{\frac{1}{3}}-x^{\frac{1}{3}}\right)^{-1}\cdot(a-x)-\dfrac{a+x}{a^{\frac{1}{3}}+x^{\frac{1}{3}}}\right]\cdot 2^{-1}\cdot(ax)^{-\frac{1}{3}}$

15) $\left(\sqrt{x}+\dfrac{y-\sqrt{xy}}{\sqrt{x}+\sqrt{y}}\right):\left(\dfrac{x}{\sqrt{xy}+y}+\dfrac{y}{\sqrt{xy}}-\dfrac{x+y}{\sqrt{xy}}\right)$

16) $\left(\dfrac{a\sqrt{a}+b\sqrt{b}}{\sqrt{a}+\sqrt{b}}-\sqrt{ab}\right):(a-b)+\dfrac{2\sqrt{b}}{\sqrt{a}+\sqrt{b}}$

17) $\left(\sqrt{a(1-a)}+\dfrac{\sqrt{a^3}}{\sqrt{1-a}}\right):\left(\dfrac{1}{1+\sqrt{a}}+\dfrac{\sqrt{a}}{1-a}\right)$

18) $\left[\dfrac{1-a^2}{\left(\dfrac{1-a\sqrt{a}}{1-\sqrt{a}}+\sqrt{a}\right)\left(\dfrac{1+a\sqrt{a}}{1+\sqrt{a}}-\sqrt{a}\right)}+1\right]\cdot\sqrt{1-a^2}$

19) $6a+\left(\dfrac{a}{a-2}-\dfrac{a}{a+2}\right):\dfrac{4a}{a^4-2a^3+8a-16}$

20) $\dfrac{b^{\frac{1}{2}}}{1+a^{\frac{1}{2}}}:\left(\dfrac{\sqrt{b}-\dfrac{a}{(ab)^{-0,5}}}{1-a}-\sqrt{ab}\right)+\dfrac{a}{b}\left(-3\dfrac{3}{8}\right)^{-\frac{1}{3}}$

21) $\left[(a-b)\sqrt{\dfrac{a+b}{a-b}}+a-b\right]\left[(a-b)\left(\sqrt{\dfrac{a+b}{a-b}}-1\right)\right]$

22) $\dfrac{2\sqrt{x}}{\sqrt{7}+\sqrt{x}}+\left(\dfrac{7\sqrt{7}+x\sqrt{x}}{\sqrt{7}+\sqrt{x}}-\sqrt{7x}\right):(7-x)$

23) $\left(4-\dfrac{2}{\sqrt{x}+1}\right)\cdot\left(1+\dfrac{\sqrt{x}}{\sqrt{x}-1}\right)-\dfrac{6}{x-1}$

24) $\left(\sqrt{x}-\dfrac{1}{\sqrt{x}}+\dfrac{\sqrt{x}+1}{\sqrt{x}-1}-\dfrac{\sqrt{x}-1}{\sqrt{x}+1}\right)\cdot\dfrac{\sqrt{x}}{x+1}$

25) $\dfrac{\left(\sqrt{x}-\sqrt{y}\right)^3+\dfrac{2x^2\sqrt{x}}{x}+y\sqrt{y}}{x\sqrt{x}+y\sqrt{y}}+\dfrac{3\sqrt{xy}-3y}{x-y}$

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

27) $a(x+y)\dfrac{\dfrac{1}{a-x}-\dfrac{1}{a-y}+\dfrac{x}{(a-x)^2}-\dfrac{y}{(a-y)^2}}{\dfrac{1}{(a-y)(a-x)^2}-\dfrac{1}{(a-x)(a-y)^2}}$

28) $\left[\dfrac{(5+y)^2-20y}{25-5y}-\left(\dfrac{5}{y-5}\right)^{-2}\right]^2:\dfrac{25y^2-y^4}{625}$

29) $\left[\dfrac{8}{x+\dfrac{1}{y+\dfrac{1}{7}}}:\dfrac{1}{x+\dfrac{1}{y}}-\dfrac{8}{y(7xy+x+7)}\right]^{-\frac{1}{3}}$

30) $\dfrac{\left(1+\dfrac{z}{x+y}+\dfrac{z^2}{(x+y)^2}\right)\left(1-\dfrac{z^2}{(x+y)^2}\right)}{\left(1-\dfrac{z^3}{(x+y)^3}\right)\left(1+\dfrac{z}{x+y}\right)}$

31) $\dfrac{a^{-6}-64}{4+\dfrac{2}{a}+\dfrac{1}{a^2}}:\dfrac{4-4a^{-1}+a^{-2}}{a^2}-\dfrac{2a+1}{(1-2a)(2a)^{-2}}$

32) $\left[1+\dfrac{1+\dfrac{b^2-a^2}{(b+a)^2-2ab}}{1-\dfrac{b^2-a^2}{b^2+a^2}}\right]\cdot\dfrac{1}{1+\dfrac{b^2}{a^2}}+\dfrac{a^2-4a-5}{a(2+a)+1}:\dfrac{10-2a}{a+a^2}$

33) $\dfrac{a^4+a^3-a-1}{a^3+a^3b^2-b^2-1}\cdot\dfrac{\left(2+\dfrac{b}{a}\left(a^2-1\right)\right)^2+\left(2b-\dfrac{1}{a}\left(a^2-1\right)\right)^2}{a^2-a^{-2}}$

34) $\left(\dfrac{16e^{-1}-9e}{4e^{-0,5}-3e^{0,5}}+\dfrac{16e-9e^{-1}}{4e^{0,5}-3e^{-0,5}}-\dfrac{e-e^{-1}}{e^{0,5}-e^{-0,5}}\right):\left(e^{0,5}+e^{-0,5}\right)$

35) $\left(\sqrt{\dfrac{1}{1-m^2}}-\sqrt{1-m^2}\right):\left(\dfrac{1}{4+4\sqrt{m}}+\dfrac{1}{4-4\sqrt{m}}-\dfrac{1}{2+2m}\right)$

36) $\left(\dfrac{a+1}{\sqrt{a}}+\dfrac{1}{a-\sqrt{a}}-\dfrac{a}{\sqrt{a}+1}\right)\dfrac{\sqrt{3}-a\sqrt{3}}{a+1}$

37) $\left(\dfrac{\sqrt{1+a}}{\sqrt{1+a}-\sqrt{1-a}}+\dfrac{1-a}{\sqrt{1-a^2}-1+a}\right)\left(\sqrt{\dfrac{1}{a^2}-1}-\dfrac{1}{a}\right)$

38) $\left(\dfrac{a^{-\frac{2}{3}}}{b^{-1}}-\dfrac{b^{-1}}{a^{-\frac{2}{3}}}\right):\left(\dfrac{a^{-\frac{1}{3}}}{b^{-\frac{1}{2}}}-\dfrac{b^{-\frac{1}{2}}}{a^{-\frac{1}{3}}}\right)-a^{\frac{1}{3}}\cdot b^{-\frac{1}{2}}$

39) $\left(\dfrac{1}{\sqrt{y-1}}+\dfrac{1}{\sqrt{y+1}}\right):\left[\left(\sqrt{y-1}\right)^{-1}-\left(\sqrt{y+1}\right)^{-1}\right]$

40) $\left(\dfrac{\sqrt[4]{a^3}-\sqrt[4]{b^3}}{\sqrt{a}-\sqrt{b}}-\sqrt[4]{a}-\sqrt[4]{b}\right)\left(\sqrt[4]{\dfrac{a}{b}}+1\right)$

Dělte mnohočlen mnohočlenem

41) $\left(-6z^4+10z^3+7z^2-5z+3\right):\left(-2z^2+3\right)$
42) $\left(x^3+9x^2+12x-16\right):\left(0,5x^2-3x-4\right)$
43) $\left(a^5-2a^4b-4a^3b^2-5a^2b^3-23ab^4-7b^5\right):\left(3ab^2+a^3+b^3\right)$
44) $\left(2x^7+3x^6+14x^5+10x^4-7x^3-32x^2+15x-5\right):\left(x^4+7x^2-3x+1\right)$
45) $\left(12z^6-7z^4+32z^3-13z^2-24z\right):\left(8z^3+4z^2-12z\right)$
46) $\left(4a^4-14a^3b-24a^2b^2-54b^4\right):\left(a^2-3ab-9b^2\right)$
47) $\left(15m^4-m^3-m^2+41m-70\right):\left(3m^2-2m+7\right)$
48) $\left(28x^5y-26x^3y^3-13x^4y^2+15x^2y^4\right):\left(2x^2y^2+7x^3y-5xy^3\right)$
49) $\left(17x^2-6x^4+5x^3-23x+7\right):\left(7-3x^2-2x\right)$
50) $\left(13x^2y^3+9x^5-21xy^4+6y^5-15x^4y-8x^3y^2\right):\left(2x^2y+3y^3+3x^3\right)$

1) $$\frac{(x+y)^{2a+1}}{(u-v)^{2a-1}}\cdot\frac{(u-v)^{2a+1}}{(x^2-y^2)^{2a+1}}\cdot\frac{(x-y)^{2a+2}}{(u-v)^2};x\neq y,x\neq -y,u\neq v,a\in Z$$

$$=\frac{(x+y)^{2a+1}}{(u-v)^{2a+1}}\cdot\frac{(u-v)^{2a+1}}{(x-y)^{2a+1}\cdot(x+y)^{2a+1}}\cdot\frac{(x-y)^{2(a+1)}}{(u-v)^2}=$$

$$=\frac{(u-v)^{2a}\cdot(u-v)\cdot(x-y)^{2a}\cdot(x-y)^2}{(u-v)^{2a}\cdot\frac{1}{(u-v)}\cdot(x-y)^{2a}\cdot(x-y)\cdot(u-v)^2}=x-y$$

2) $$\left(\frac{a^x+a^{-x}}{b^y+b^{-y}}\right)^{-1}\cdot\left(\frac{a^x-a^{-x}}{b^y-b^{-y}}\right)^2\cdot\left(\frac{a^{2x}-1}{b^{2y}-1}\right)^{-2}:\left(\frac{a^{2x}+1}{b^{2y}+1}\right)^{-1};a\neq 0,\pm1,b\neq 0,\pm1,x\neq 0,y\neq 0,x,y\in Z$$

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

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

3) $$2u-\left(\frac{2u-3}{u+1}-\frac{u+1}{2-2u}-\frac{u^2+3}{2u^2-2}\right)\cdot\frac{u^3+1}{u^2-u};u\neq -1,u\neq 0,u\neq 1$$

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

$$=2u-\left(\frac{4u^2-4u-6u+6+u^2+2u+1-u^2-3}{2(u-1)}\right)\cdot\frac{u^2-u+1}{u(u-1)}=$$

$$=2u-\frac{4u^2-8u+4}{2(u-1)}\cdot\frac{u^2-u+1}{u(u-1)}=2u-\frac{4(u-1)^2(u^2-u+1)}{2u(u-1)^2}=$$

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

4) $$\left[\left(\frac{z-3}{z^2-3z+9}-\frac{6z-18}{z^3+27}\right):\frac{5z-15}{4z^3+108}\right]\cdot\left(\frac{1}{z-3}-\frac{1}{z+2}\right);z\neq -3,z\neq -2,z\neq 3$$

$$=\left[\left(\frac{z-3}{z^2-3z+9}-\frac{6(z-3)}{(z+3)(z^2-3z+9)}\right)\cdot\frac{4(z+3)(z^2-3z+9)}{5(z-3)}\right]\cdot\left(\frac{z+2-z+3}{(z-3)(z+2)}\right)=$$

$$=\frac{(z-3)(z+3)-6(z-3)}{(z+3)(z^2-3z+9)}\cdot\frac{4(z+3)(z^2-3z+9)}{5(z-3)}\cdot\frac{5}{(z-3)(z+2)}=$$

$$=\frac{4(z+3-6)5}{(z-3)(z+2)}=\frac{4(z-3)}{(z-3)(z+2)}=\frac{4}{z+2}$$

5) $\frac{x+1}{2x-2}-\frac{x-1}{2x+2}-\frac{4x}{x^2-1}+\frac{x^2+1}{x^2-1}; x\neq -1, x\neq 1$

$=\frac{(x+1)^2-(x-1)^2-8x+2x^2+2}{2(x+1)(x-1)}=\frac{x^2+2x+1-x^2+2x-1-8x+2x^2+2}{2(x+1)(x-1)}=$

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

6) $\frac{a^4-b^4}{a^2b^2}:\left[\left(1+\frac{b^2}{a^2}\right)\left(1-\frac{2a}{b}+\frac{a^2}{b^2}\right)\right]; a\neq 0, b\neq 0$

$=\frac{(a^2-b^2)(a^2+b^2)}{a^2b^2}:\left[\left(\frac{a^2+b^2}{a^2}\right)\left(\frac{b^2-2ab+a^2}{b^2}\right)\right]=$

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

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

7) $\left(\frac{d^{-0,5}}{d^{0,5}+1}-\frac{d^{-0,5}+d^{0,5}}{1-d}\right)^{-1}; d\neq 0, d\neq 1$

$=\left(\frac{\frac{1}{\sqrt{d}}}{\sqrt{d}+1}-\frac{\frac{1}{\sqrt{d}}+\sqrt{d}}{1-d}\right)^{-1}=\left(\frac{\frac{\sqrt{d}}{d}\left(\sqrt{d}-1\right)}{d-1}+\frac{\frac{\sqrt{d}+d\sqrt{d}}{d}}{d-1}\right)^{-1}=\left(\frac{\sqrt{d}\left(\sqrt{d}-1\right)+\sqrt{d}(d+1)}{d(d-1)}\right)^{-1}=$

$=\left(\frac{d-\sqrt{d}+d\sqrt{d}+\sqrt{d}}{d(d-1)}\right)^{-1}=\left(\frac{d\left(1+\sqrt{d}\right)}{d(d-1)}\right)^{-1}=\frac{d-1}{\sqrt{d}+1}=\frac{(d-1)\left(\sqrt{d}-1\right)}{d-1}=\sqrt{d}-1$

8) $\left[\frac{a^3-ab^2+b^3}{(a-b)^3}-\frac{b}{a-b}\right]\left[\frac{a^2-2ab+2b^2}{a^2-ab+b^2}-\frac{b}{a}\right]; a\neq b, a\neq 0$

$=\left[\frac{a^3-ab^2+b^3-b(a-b)^2}{(a-b)^3}\right]\left[\frac{a^3-2a^2b+2ab^2-a^2b+ab^2-b^3}{a(a^2-ab+b^2)}\right]=$

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

$=\frac{a^3+ab^2-a^2b}{(a-b)^3}\cdot\frac{(a-b)^3}{a(a^2-ab+b^2)}=\frac{a(a^2+b^2-ab)}{a(a^2-ab+b^2)}=1$

9) $$\frac{\dfrac{t+1}{t+2}-\dfrac{1-t}{2-t}}{\dfrac{2t}{t^2-4}}:\frac{\dfrac{1}{1-t}-1}{t+\dfrac{1-2t^2}{t-1}+1};t\neq -2, t\neq 0, t\neq 1, t\neq 2$$

$$=\frac{\dfrac{(t+1)(t-2)+(1-t)(t+2)}{(t+2)(t-2)}}{\dfrac{2t}{(t-2)(t+2)}}:\frac{\dfrac{1-1+t}{1-t}}{\dfrac{t(t-1)+1-2t^2+t-1}{t-1}}=$$

$$=\frac{t^2-2t+t-2+t+2-t^2-2t}{2t}:\frac{-t}{t^2-t+t-2t^2}=$$

$$=\frac{-2t}{2t}\cdot\frac{-t^2}{-t}=-t$$

10) $$\frac{\left(\dfrac{x}{y}+\dfrac{y}{x}-1\right)\left(\dfrac{x}{y}+\dfrac{y}{x}+1\right)\left(x^2-y^2\right)}{\dfrac{x^4}{y^2}-\dfrac{y^4}{x^2}};x\neq 0, y\neq 0, x\neq \pm y$$

$$=\frac{\left(\dfrac{x^2+y^2-xy}{xy}\right)\left(\dfrac{x^2+y^2+xy}{xy}\right)\left(x^2-y^2\right)}{\dfrac{x^6-y^6}{x^2y^2}}=\frac{\left(x^2+y^2-xy\right)\left(x^2+y^2+xy\right)\left(x^2-y^2\right)}{x^2y^2}\cdot\frac{x^2y^2}{x^6-y^6}=$$

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

11) $\dfrac{\left(\dfrac{x}{y}+\dfrac{y}{x}+1\right)\left(\dfrac{1}{x}-\dfrac{1}{y}\right)^2}{\dfrac{x^2}{y^2}+\dfrac{y^2}{x^2}-\left(\dfrac{x}{y}+\dfrac{y}{x}\right)}; x \neq 0, y \neq 0, x \neq y$

$$=\frac{\left(\frac{x^2+y^2+xy}{xy}\right)\left(\frac{y-x}{xy}\right)^2}{\frac{x^2}{y^2}+\frac{y^2}{x^2}-\left(\frac{x^2+y^2}{xy}\right)}=\frac{\frac{\left(x^2+y^2+xy\right)\left(y-x\right)^2}{x^3y^3}}{\frac{x^4+y^4-\left(x^2+y^2\right)xy}{x^2y^2}}=\frac{\frac{\left(x^2+y^2+xy\right)\left(y-x\right)^2}{x^3y^3}}{\frac{x^4+y^4-x^3y-xy^3}{x^2y^2}}=$$

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

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

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

12) $\left(\dfrac{\left(\sqrt{a}+1\right)^2-\dfrac{a-\sqrt{ax}}{\sqrt{a}-\sqrt{x}}}{\left(\sqrt{a}+1\right)^3-a\sqrt{a}+2}\right)^{-3}; a \geq 0, a \neq x, x \geq 0$

$$=\frac{\left(a\sqrt{a}+3a+3\sqrt{a}+1-a\sqrt{a}+2\right)^3}{\left(\frac{\left(a+2\sqrt{a}+1\right)\left(\sqrt{a}-\sqrt{x}\right)-a+\sqrt{ax}}{\sqrt{a}-\sqrt{x}}\right)^3}=$$

$$=\frac{\left[3\left(a+\sqrt{a}+1\right)\right]^3}{\left(\frac{a\sqrt{a}-a\sqrt{x}+2a-2\sqrt{ax}+\sqrt{a}-\sqrt{x}-a+\sqrt{ax}}{\sqrt{a}-\sqrt{x}}\right)^3}=$$

$$=\frac{27\left(a+\sqrt{a}+1\right)^3\left(\sqrt{a}-\sqrt{x}\right)^3}{\left(a\sqrt{a}-a\sqrt{x}+a-\sqrt{ax}+\sqrt{a}-\sqrt{x}\right)^3}=\frac{27\left(a\sqrt{a}-a\sqrt{x}+a-\sqrt{ax}+\sqrt{a}-\sqrt{x}\right)^3}{\left(a\sqrt{a}-a\sqrt{x}+a-\sqrt{ax}+\sqrt{a}-\sqrt{x}\right)^3}=27$$

13) $\frac{1}{2}\left(\sqrt{x^2+a}+\frac{x^2}{\sqrt{x^2+a}}\right)+\frac{a}{2}\cdot\frac{1+\frac{x}{\sqrt{x^2+a}}}{x+\sqrt{x^2+a}};x^2+a>0,x+\sqrt{x^2+a}\neq 0$

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

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

14) $\left[\left(a^{\frac{1}{3}}-x^{\frac{1}{3}}\right)^{-1}\cdot(a-x)-\frac{a+x}{a^{\frac{1}{3}}+x^{\frac{1}{3}}}\right]\cdot 2^{-1}\cdot(ax)^{-\frac{1}{3}};a>0,x>0,a\neq x$

$$=\left[\frac{a-x}{\sqrt[3]{a}-\sqrt[3]{x}}-\frac{a+x}{\sqrt[3]{a}+\sqrt[3]{x}}\right]\frac{1}{2\sqrt[3]{ax}}=\frac{(a-x)\left(\sqrt[3]{a}+\sqrt[3]{x}\right)-(a+x)\left(\sqrt[3]{a}-\sqrt[3]{x}\right)}{\left(\sqrt[3]{a}-\sqrt[3]{x}\right)\left(\sqrt[3]{a}+\sqrt[3]{x}\right)}\cdot\frac{1}{2\sqrt[3]{ax}}=$$

$$=\frac{a\sqrt[3]{a}+a\sqrt[3]{x}-x\sqrt[3]{a}-x\sqrt[3]{x}-\left(a\sqrt[3]{a}-a\sqrt[3]{x}+x\sqrt[3]{a}-x\sqrt[3]{x}\right)}{\sqrt[3]{a^2}+\sqrt[3]{ax}-\sqrt[3]{ax}-\sqrt[3]{x^2}}\cdot\frac{1}{2\sqrt[3]{ax}}=$$

$$=\frac{2a\sqrt[3]{x}-2x\sqrt[3]{a}}{\sqrt[3]{a^2}-\sqrt[3]{x^2}}\cdot\frac{1}{2\sqrt[3]{ax}}=\frac{2\left(a\sqrt[3]{x}-x\sqrt[3]{a}\right)}{2\sqrt[3]{ax}\left(\sqrt[3]{a^2}-\sqrt[3]{x^2}\right)}=\frac{a\sqrt[3]{x}-x\sqrt[3]{a}}{a\sqrt[3]{x}-x\sqrt[3]{a}}=1$$

15) $\left(\sqrt{x}+\frac{y-\sqrt{xy}}{\sqrt{x}+\sqrt{y}}\right):\left(\frac{x}{\sqrt{xy}+y}+\frac{y}{\sqrt{xy}}-\frac{x+y}{\sqrt{xy}}\right);x>0,y>0,x\neq y$

$$=\frac{\sqrt{x}\left(\sqrt{x}+\sqrt{y}\right)+y-\sqrt{xy}}{\sqrt{x}+\sqrt{y}}:\frac{x\sqrt{xy}+y\left(\sqrt{xy}+y\right)-(x+y)\left(\sqrt{xy}+y\right)}{\sqrt{xy}\left(\sqrt{xy}+y\right)}=$$

$$=\frac{x+\sqrt{xy}+y-\sqrt{xy}}{\sqrt{x}+\sqrt{y}}\cdot\frac{xy+y\sqrt{xy}}{x\sqrt{xy}+y\sqrt{xy}+y^2-x\sqrt{xy}-xy-y\sqrt{xy}-y^2}=$$

$$=\frac{(x+y)\left(\sqrt{x}-\sqrt{y}\right)}{x-y}\cdot\frac{y\left(x+\sqrt{xy}\right)}{-xy}=\frac{\left(x\sqrt{x}-x\sqrt{y}+y\sqrt{x}-y\sqrt{y}\right)\left(x+\sqrt{xy}\right)}{-x(x-y)}=$$

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

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

16) $\left(\dfrac{a\sqrt{a}+b\sqrt{b}}{\sqrt{a}+\sqrt{b}}-\sqrt{ab}\right):(a-b)+\dfrac{2\sqrt{b}}{\sqrt{a}+\sqrt{b}};a>0,b>0,a\neq b$

$$=\frac{\left(a\sqrt{a}+b\sqrt{b}\right)\left(\sqrt{a}-\sqrt{b}\right)-\sqrt{ab}(a-b)}{a-b}:(a-b)+\frac{2\sqrt{b}\left(\sqrt{a}-\sqrt{b}\right)}{a-b}=$$

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

$$=\frac{a^2-b^2-2a\sqrt{ab}+2b\sqrt{ab}}{(a-b)^2}+\frac{\left(2\sqrt{ab}-2b\right)(a-b)}{(a-b)^2}=$$

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

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

17) $\left(\sqrt{a(1-a)}+\dfrac{\sqrt{a^3}}{\sqrt{1-a}}\right):\left(\dfrac{1}{1+\sqrt{a}}+\dfrac{\sqrt{a}}{1-a}\right);0<a<1$

$$=\frac{\sqrt{a(1-a)}\sqrt{1-a}+a\sqrt{a}}{\sqrt{1-a}}:\frac{1-a+\sqrt{a}\left(1+\sqrt{a}\right)}{\left(1+\sqrt{a}\right)(1-a)}=\frac{(1-a)\sqrt{a}+a\sqrt{a}}{\sqrt{1-a}}:\frac{1-a+\sqrt{a}+a}{\left(1+\sqrt{a}\right)(1-a)}=$$

$$=\frac{\sqrt{a}-a\sqrt{a}+a\sqrt{a}}{\sqrt{1-a}}\cdot\frac{\left(1+\sqrt{a}\right)(1-a)}{1+\sqrt{a}}=\frac{\sqrt{a}\left(1+\sqrt{a}\right)(1-a)}{\sqrt{1-a}\left(1+\sqrt{a}\right)}=\frac{\sqrt{a}(1-a)}{\sqrt{1-a}}=\frac{\sqrt{a(1-a)}(1-a)}{1-a}=$$

$$=\sqrt{a(1-a)}$$

18) $$\left[\frac{1-a^2}{\left(\frac{1-a\sqrt{a}}{1-\sqrt{a}}+\sqrt{a}\right)\left(\frac{1+a\sqrt{a}}{1+\sqrt{a}}-\sqrt{a}\right)}+1\right]\cdot\sqrt{1-a^2};a\in\langle 0;1)$$

$$=\left[\frac{1-a^2}{\left(\frac{1-a\sqrt{a}+\sqrt{a}-a}{1-\sqrt{a}}\right)\left(\frac{1+a\sqrt{a}-\sqrt{a}-a}{1+\sqrt{a}}\right)}+1\right]\sqrt{1-a^2}=$$

$$=\left[\frac{1-a^2}{\frac{1+a\sqrt{a}-\sqrt{a}-a-a\sqrt{a}-a^3+a^2+a^2\sqrt{a}+\sqrt{a}+a^2-a-a\sqrt{a}-a-a^2\sqrt{a}+a\sqrt{a}+a^2}{1-a}}+1\right]\sqrt{1-a^2}=$$

$$=\left[\frac{(1-a^2)(1-a)}{1-3a-a^3+3a^2}+1\right]\sqrt{1-a^2}=\left(\frac{(1-a)^2(1+a)}{(1-a)^3}+1\right)\sqrt{1-a^2}=$$

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

19) $$6a+\left(\frac{a}{a-2}-\frac{a}{a+2}\right):\frac{4a}{a^4-2a^3+8a-16};a\neq -2,a\neq 0,a\neq 2$$

$$=6a+\left(\frac{a(a+2)-a(a-2)}{(a-2)(a+2)}\cdot\frac{a^3(a-2)+8(a-2)}{4a}\right)=6a+\left(\frac{a^2+2a-a^2+2a}{(a-2)(a+2)}\cdot\frac{(a^3+8)(a-2)}{4a}\right)=$$

$$=6a+\frac{4a}{a+2}\cdot\frac{(a+2)(a^2-2a+4)}{4a}=6a+a^2-2a+4=a^2+4a+4=(a+2)^2$$

20) $$\frac{b^{\frac{1}{2}}}{1+a^{\frac{1}{2}}}:\left(\frac{\sqrt{b}-\frac{a}{(ab)^{-0,5}}}{1-a}-\sqrt{ab}\right)+\frac{a}{b}\left(-3\frac{3}{8}\right)^{-\frac{1}{3}};a>0,b>0,a\neq 1$$

$$=\frac{\sqrt{b}(1-\sqrt{a})}{1-a}:\left(\frac{\sqrt{b}-a\sqrt{ab}-\sqrt{ab}(1-a)}{1-a}\right)+\frac{a}{b}\left(-\frac{27}{8}\right)^{-\frac{1}{3}}=$$

$$=\frac{\sqrt{b}(1-\sqrt{a})}{1-a}\cdot\frac{1-a}{\sqrt{b}-a\sqrt{ab}-\sqrt{ab}+a\sqrt{ab}}+\frac{a}{b}\sqrt[3]{-\frac{8}{27}}=$$

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

21) $$\left[(a-b)\sqrt{\frac{a+b}{a-b}}+a-b\right]\left[(a-b)\left(\sqrt{\frac{a+b}{a-b}}-1\right)\right];\frac{a+b}{a-b}\geq 0, a\neq b$$

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

$$=\left[\frac{(a-b)\sqrt{a+b}\sqrt{a-b}}{a-b}+a-b\right]\left[(a-b)\frac{\sqrt{a^2-b^2}-a+b}{a-b}\right]=$$

$$=\left[\frac{(a-b)\sqrt{a^2-b^2}}{a-b}+a-b\right]\left[\sqrt{a^2-b^2}-a+b\right]=\left[\sqrt{a^2-b^2}+a-b\right]\left[\sqrt{a^2-b^2}-a+b\right]=$$

$$=a^2-b^2-a\sqrt{a^2-b^2}+b\sqrt{a^2-b^2}+a\sqrt{a^2-b^2}-a^2+ab-b\sqrt{a^2-b^2}+ab-b^2=$$

$$=2ab-2b^2=2b(a-b)$$

22) $${}_{7}\frac{2\sqrt{x}}{\sqrt{7}+\sqrt{x}}+\left(\frac{7\sqrt{7}+x\sqrt{x}}{\sqrt{7}+\sqrt{x}}-\sqrt{7x}\right):(7-x); x\neq 7, x\geq 0$$

$$=\frac{2\sqrt{x}\left(\sqrt{7}-\sqrt{x}\right)}{7-x}+\frac{\left(7\sqrt{7}+x\sqrt{x}\right)\left(\sqrt{7}-\sqrt{x}\right)-\sqrt{7x}(7-x)}{(7-x)^2}=$$

$$=\frac{\left(2\sqrt{7x}-2x\right)(7-x)}{(7-x)^2}+\frac{49-7\sqrt{7x}+x\sqrt{7x}-x^2-7\sqrt{7x}+x\sqrt{7x}}{(7-x)^2}=$$

$$=\frac{14\sqrt{7x}-2x\sqrt{7x}-14x+2x^2+49-14\sqrt{7x}+x\sqrt{7x}-x^2+x\sqrt{7x}}{(7-x)^2}=$$

$$=\frac{x^2-14x+49}{(7-x)^2}=\frac{(7-x)^2}{(7-x)^2}=1$$

23) $$\left(4-\frac{2}{\sqrt{x}+1}\right)\cdot\left(1+\frac{\sqrt{x}}{\sqrt{x}-1}\right)-\frac{6}{x-1}; x\geq 0, x\neq 1$$

$$=\left(4-\frac{2\left(\sqrt{x}-1\right)}{x-1}\right)\left(1+\frac{\sqrt{x}\left(\sqrt{x}+1\right)}{x-1}\right)-\frac{6}{x-1}=\frac{4x-4-2\sqrt{x}+2}{x-1}\cdot\frac{x-1+x+\sqrt{x}}{x-1}-\frac{6}{x-1}=$$

$$=\frac{\left(4x-2\sqrt{x}-2\right)\left(2x+\sqrt{x}-1\right)}{(x-1)^2}-\frac{6(x-1)}{(x-1)^2}=$$

$$=\frac{8x^2+4x\sqrt{x}-4x-4x\sqrt{x}-2x+2\sqrt{x}-4x-2\sqrt{x}+2}{(x-1)^2}-\frac{6x-6}{(x-1)^2}=$$

$$=\frac{8x^2-10x+2-6x+6}{(x-1)^2}=\frac{8x^2-16x+8}{(x-1)^2}=\frac{8(x-1)^2}{(x-1)^2}=8$$

24) $\left(\sqrt{x}-\frac{1}{\sqrt{x}}+\frac{\sqrt{x}+1}{\sqrt{x}-1}-\frac{\sqrt{x}-1}{\sqrt{x}+1}\right)\cdot\frac{\sqrt{x}}{x+1}; x>0, x\neq 1$

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

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

$$=\frac{x^2\sqrt{x}-x\sqrt{x}-x\sqrt{x}+\sqrt{x}+x^2+2x\sqrt{x}+x-x^2+2x\sqrt{x}-x}{x(x-1)}\cdot\frac{\sqrt{x}}{x+1}=$$

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

25) $\frac{\left(\sqrt{x}-\sqrt{y}\right)^3+\frac{2x^2\sqrt{x}}{x}+y\sqrt{y}}{x\sqrt{x}+y\sqrt{y}}+\frac{3\sqrt{xy}-3y}{x-y}; x>0, y>0, x\neq y$

$$=\frac{x\sqrt{x}-3x\sqrt{y}+3y\sqrt{x}-y\sqrt{y}+2x\sqrt{x}+y\sqrt{y}}{x\sqrt{x}+y\sqrt{y}}+\frac{3\left(\sqrt{xy}-y\right)}{x-y}=$$

$$=\frac{3x\sqrt{x}-3x\sqrt{y}+3y\sqrt{x}}{x\sqrt{x}+y\sqrt{y}}+\frac{3\left(\sqrt{xy}-y\right)}{x-y}=$$

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

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

$$=\frac{3\left[x\sqrt{x}(x-y)+y\sqrt{y}(x-y)\right]}{(x-y)\left(x\sqrt{x}+y\sqrt{y}\right)}=\frac{3(x-y)\left(x\sqrt{x}+y\sqrt{y}\right)}{(x-y)\left(x\sqrt{x}+y\sqrt{y}\right)}=3$$

26) $\left(a^{-\frac{1}{2}}+b^{-\frac{1}{2}}\right)^{-2}+\left(a^{-\frac{1}{2}}-b^{-\frac{1}{2}}\right)^{-2};a>0,b>0,a\neq b$

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

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

$$=\frac{ab\left(b-2\sqrt{ab}+a\right)+ab\left(b+2\sqrt{ab}+a\right)}{\left(b+2\sqrt{ab}+a\right)\left(b-2\sqrt{ab}+a\right)}=$$

$$=\frac{ab^2-2ab\sqrt{ab}+a^2b+ab^2+2ab\sqrt{ab}+a^2b}{b^2-2b\sqrt{ab}+ab+2b\sqrt{ab}-4ab+2a\sqrt{ab}+ab-2a\sqrt{ab}+a^2}=\frac{2ab^2+2a^2b}{a^2-2ab+b^2}=\frac{2ab(a+b)}{(a-b)^2}$$

27) $a(x+y)\dfrac{\frac{1}{a-x}-\frac{1}{a-y}+\frac{x}{(a-x)^2}-\frac{y}{(a-y)^2}}{\frac{1}{(a-y)(a-x)^2}-\frac{1}{(a-x)(a-y)^2}};x\neq y,a\neq x,a\neq y$

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

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

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

$$=a(x+y)\frac{a^3-2a^2y+ay^2-a^3+2a^2x-ax^2}{x-y}=\frac{a(x+y)}{x-y}\left[2a^2(x-y)-a\left(x^2-y^2\right)\right]=$$

$$=\frac{a(x+y)}{x-y}(x-y)\left[2a^2-a(x+y)\right]=a(x+y)\left(2a^2-ax-ay\right)=a^2(x+y)(2a-x-y)$$

$$\left[\frac{(5+y)^2-20y}{25-5y}-\left(\frac{5}{y-5}\right)^{-2}\right]^2:\frac{25y^2-y^4}{625}$$

28)

28) $$=\left[\frac{25+10y+y^2-20y}{5(5-y)}-\left(\frac{y-5}{5}\right)^2\right]^2\cdot\frac{625}{(5y-y^2)(5y+y^2)}=$$

$$=\left[\frac{25-10y+y^2}{5(5-y)}-\frac{(5-y)^2}{25}\right]^2\cdot\frac{625}{y^2(5-y)(5+y)}=$$

$$=\left[\frac{(5-y)^2}{5(5-y)}-\frac{(5-y)^2}{25}\right]\cdot\frac{625}{y^2(5-y)(5+y)}=\left[\frac{5(5-y)-(5-y)^2}{25}\right]\cdot\frac{625}{y^2(5-y)(5+y)}=$$

$$=\frac{[(5-y)(5-5+y)]^2}{625}\cdot\frac{625}{y^2(5-y)(5+y)}=\frac{5-y}{5+y}$$

29) $$\left[\frac{8}{x+\frac{1}{y+\frac{1}{7}}}:\frac{1}{x+\frac{1}{y}}-\frac{8}{y(7xy+x+7)}\right]^{-\frac{1}{3}};\ y\neq 0,\ y\neq-\frac{1}{7},\ x\neq-\frac{1}{y},\ x\neq\frac{7}{7y+1}$$

$$=\left[\frac{8}{\frac{xy+\frac{x}{7}+1}{y+\frac{1}{7}}}\cdot\frac{\frac{xy+1}{y}}{1}-\frac{8}{y(7xy+x+7)}\right]^{-\frac{1}{3}}=\left[\frac{8y+\frac{8}{7}}{xy+\frac{x}{7}+1}\cdot\frac{xy+1}{y}-\frac{8}{y(7xy+x+7)}\right]^{-\frac{1}{3}}=$$

$$=\left[\frac{\left(8y+\frac{8}{7}\right)(xy+1)-8}{y(7xy+x+7)}\right]^{-\frac{1}{3}}=\left[\frac{y(7xy+x+7)}{8\left(y+\frac{1}{7}\right)(xy+1)-8}\right]^{\frac{1}{3}}=\left[\frac{y(7xy+x+7)}{8\left(xy^2+y+\frac{xy}{7}+\frac{1}{7}\right)-8}\right]^{\frac{1}{3}}=$$

$$=\left[\frac{y(7xy+x+7)}{8(7xy^2+7y+xy+1-1)}\right]^{\frac{1}{3}}=\left[\frac{y(7xy+x+7)}{8y(7xy+7+x)}\right]^{\frac{1}{3}}=\sqrt[3]{\frac{1}{8}}=\frac{1}{2}$$

30) $$\frac{\left(1+\frac{z}{x+y}+\frac{z^2}{(x+y)^2}\right)\left(1-\frac{z^2}{(x+y)^2}\right)}{\left(1-\frac{z^3}{(x+y)^3}\right)\left(1+\frac{z}{x+y}\right)};|x+y|\neq z$$

$$=\frac{\left(\frac{x^2+2xy+y^2+xz+yz+z^2}{(x+y)^2}\right)\left(\frac{x^2+2xy+y^2-z^2}{(x+y)^2}\right)}{\left(\frac{x^3+3x^2y+3xy^2+y^3-z^3}{(x+y)^3}\right)\left(\frac{x+y+z}{x+y}\right)}=$$

$$=\frac{(x^2+2xy+y^2+xz+yz+z^2)(x^2+2xy+y^2-z^2)}{(x^3+3x^2y+3xy^2+y^3-z^3)(x+y+z)}=$$

$$=\frac{x^4+2x^3y+x^2y^2-x^2z^2+2x^3y+4x^2y^2+2xy^3-2xyz^2+x^2y^2+2xy^3+y^4-y^2z^2+x^3z+2x^2yz}{x^4+x^3y+x^3z+3x^3y+3x^2y^2+3x^2yz+3x^2y^2+3xy^3+3xy^2z+xy^3+y^4+y^3z-xz^3-yz^3-z^4}+$$

$$+\frac{xy^2z-xz^3+x^2yz+2xy^2z+y^3z-yz^3+x^2z^2+2xyz^2+y^2z^2-z^4}{x^4+y^4-z^4+4x^3y+6x^2y^2+4xy^3+3xy^2z+3x^2yz-xz^3+x^3z+y^3z-yz^3}=$$

$$=\frac{x^4+y^4-z^4+4x^3y+6x^2y^2+4xy^3+3xy^2z+3x^2yz-xz^3+x^3z+y^3z-yz^3}{x^4+y^4-z^4+4x^3y+6x^2y^2+4xy^3+3xy^2z+3x^2yz-xz^3+x^3z+y^3z-yz^3}=1$$

31) $$\frac{a^{-6}-64}{4+\frac{2}{a}+\frac{1}{a^2}}:\frac{4-4a^{-1}+a^{-2}}{a^2}-\frac{2a+1}{(1-2a)(2a)^{-2}};a\neq 0,a\neq\frac{1}{2}$$

$$=\frac{\frac{1}{a^6}-64}{\frac{4a^2+2a+1}{a^2}}:\frac{4-\frac{4}{a}+\frac{1}{a^2}}{a^2}-\frac{2a+1}{\frac{1-2a}{(2a)^2}}=\frac{1-64a^6}{a^6}\cdot\frac{a^2}{4a^2+2a+1}\cdot\frac{a^2}{\frac{4a^2-4a+1}{a^2}}-\frac{4a^2(2a+1)}{1-2a}=$$

$$=\frac{(1-8a^3)(1+8a^3)}{a^4(4a^2+2a+1)}\cdot\frac{a^4}{(2a-1)^2}+\frac{4a^2(2a+1)}{2a-1}=\frac{(1-2a)(1+2a+4a^2)(1+2a)(1-2a+4a^2)}{(2a-1)^2(4a^2+2a+1)}+\frac{4a^2(2a+1)}{2a-1}=$$

$$=\frac{-(1+2a)(1-2a+4a^2)+4a^2(2a+1)}{2a-1}=\frac{(2a+1)(2a-1-4a^2+4a^2)}{2a-1}=\frac{(2a+1)(2a-1)}{2a-1}=2a+1$$

32) $$\left[1+\frac{1+\frac{b^2-a^2}{(b+a)^2-2ab}}{1-\frac{b^2-a^2}{b^2+a^2}}\right]\cdot\frac{1}{1+\frac{b^2}{a^2}}+\frac{a^2-4a-5}{a(2+a)+1}:\frac{10-2a}{a+a^2};a\neq -1,a\neq 0,a\neq 5$$

$$=\left[1+\frac{\dfrac{b^2+2ab+a^2+b^2-a^2-2ab}{(b+a)^2-2ab}}{\dfrac{b^2+a^2-b^2+a^2}{b^2+a^2}}\right]\cdot\frac{1}{\dfrac{a^2+b^2}{a^2}}+\frac{a^2-4a-5}{2a+a^2+1}\cdot\frac{a(a+1)}{2(5-a)}=$$

$$=\left[1+\frac{\dfrac{2b^2}{a^2+b^2}}{\dfrac{2a^2}{b^2+a^2}}\right]\cdot\frac{a^2}{a^2+b^2}+\frac{a^2-4a-5}{(a+1)^2}\cdot\frac{a(a+1)}{2(5-a)}=\left(1+\frac{2b^2}{2a^2}\right)\cdot\frac{a^2}{a^2+b^2}+\frac{a(a^2-4a-5)}{2(a+1)(5-a)}=$$

$$=\frac{a^2+b^2}{a^2}\cdot\frac{a^2}{a^2+b^2}+\frac{a(a^2-4a-5)}{2(5a-a^2+5-a)}=1+\frac{a(a^2-4a-5)}{-2(a^2-4a-5)}=1-\frac{a}{2}$$

33) $$\frac{a^4+a^3-a-1}{a^3+a^3b^2-b^2-1}\cdot\frac{\left(2+\dfrac{b}{a}(a^2-1)\right)^2+\left(2b-\dfrac{1}{a}(a^2-1)\right)^2}{a^2-a^{-2}};a\neq 0,a\neq 1$$

$$=\frac{a^3(a+1)-(a+1)}{a^3(1+b^2)-(1+b^2)}\cdot\frac{\left(\dfrac{2a+a^2b-b}{a}\right)^2+\left(\dfrac{2ab-a^2+1}{a}\right)^2}{\dfrac{a^4-1}{a^2}}=$$

$$=\frac{(a+1)(a^3-1)}{(b^2+1)(a^3-1)}\cdot\frac{(2a+a^2b-b^2)+(2ab-a^2+1)^2}{a^2}\cdot\frac{a^2}{(a^2-1)(a^2+1)}=$$

$$=\frac{a+1}{b^2+1}\cdot\frac{4a^2+2a^3b+2a^3b+a^4b^2-a^2b^2-2ab-a^2b^2+b^2+4a^2b^2-2a^3b-2a^3b+a^4-2a^2+2ab+1}{(a+1)(a-1)(a^2+1)}=$$

$$=\frac{2a^2+a^4b+2a^2b^2+b^2+a^4+1}{(b^2+1)(a-1)(a^2+1)}=\frac{2a^2(1+b^2)+a^4(1+b^2)+1+b^2}{(b^2+1)(a-1)(a^2+1)}=\frac{2a^2+a^4+1}{(a-1)(a^2+1)}=$$

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

34) $$\left(\frac{16e^{-1}-9e}{4e^{-0,5}-3e^{0,5}}+\frac{16e-9e^{-1}}{4e^{0,5}-3e^{-0,5}}-\frac{e-e^{-1}}{e^{0,5}-e^{-0,5}}\right):\left(e^{0,5}+e^{-0,5}\right);e\neq\frac{3}{4},e\neq 1,e\neq\frac{4}{3},e>0$$

$$=\left(\frac{\frac{16}{e}-9e}{\frac{4}{\sqrt{e}}-3\sqrt{e}}+\frac{16e-\frac{9}{e}}{4\sqrt{e}-\frac{3}{\sqrt{e}}}-\frac{e-\frac{1}{e}}{\sqrt{e}-\frac{1}{\sqrt{e}}}\right):\left(\sqrt{e}+\frac{1}{\sqrt{e}}\right)=$$

$$=\left(\frac{\frac{16-9e^2}{e}}{\frac{4\sqrt{e}-3e\sqrt{e}}{e}}+\frac{\frac{16e^2-9}{e}}{\frac{4e\sqrt{e}-3\sqrt{e}}{e}}-\frac{\frac{e^2-1}{e}}{\frac{e\sqrt{e}-\sqrt{e}}{e}}\right):\left(\frac{e\sqrt{e}+\sqrt{e}}{e}\right)=$$

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

$$=\frac{4+3e+4e+3-e-1}{\sqrt{e}}\cdot\frac{e}{\sqrt{e}(e+1)}=\frac{6+6e}{e+1}=6$$

35) $\left(\sqrt{\frac{1}{1-m^2}}-\sqrt{1-m^2}\right):\left(\frac{1}{4+4\sqrt{m}}+\frac{1}{4-4\sqrt{m}}-\frac{1}{2+2m}\right);0<m<1$

$$=\frac{1-(1-m^2)}{\sqrt{1-m^2}}:\frac{(1+m)(1-\sqrt{m})+(1+m)(1+\sqrt{m})-2(1-m)}{4(1+m)(1+\sqrt{m})(1-\sqrt{m})}=$$

$$=\frac{m^2}{\sqrt{1-m^2}}:\frac{1-\sqrt{m}+m-m\sqrt{m}+1+\sqrt{m}+m+m\sqrt{m}-2+2m}{(4-4m)(1+m)}=$$

$$=\frac{m^2}{\sqrt{1-m^2}}\cdot\frac{4(1-m^2)}{4m}=\frac{m(1-m^2)}{\sqrt{1-m^2}}=\frac{m(1-m^2)\sqrt{1-m^2}}{1-m^2}=m\sqrt{1-m^2}$$

36) $\left(\frac{a+1}{\sqrt{a}}+\frac{1}{a-\sqrt{a}}-\frac{a}{\sqrt{a}+1}\right)\frac{\sqrt{3}-a\sqrt{3}}{a+1};a>1$

$$=\frac{(a+1)(a-\sqrt{a})(\sqrt{a}+1)+\sqrt{a}(\sqrt{a}+1)-a\sqrt{a}(a-\sqrt{a})}{\sqrt{a}(a-\sqrt{a})(\sqrt{a}+1)}\cdot\frac{\sqrt{3}(1-a)}{a+1}=$$

$$=\frac{(a^2-a\sqrt{a}+a-\sqrt{a})(\sqrt{a}+1)+a+\sqrt{a}-a^2\sqrt{a}+a^2}{\sqrt{a}(a\sqrt{a}+a-a-\sqrt{a})}\cdot\frac{\sqrt{3}(1-a)}{a+1}=$$

$$=\frac{a^2\sqrt{a}+a^2-a^2-a\sqrt{a}+a\sqrt{a}+a-a-\sqrt{a}+a+\sqrt{a}-a^2\sqrt{a}+a^2}{a^2-a}\cdot\frac{-\sqrt{3}(a-1)}{a+1}=$$

$$=\frac{a+a^2}{a(a-1)}\cdot\frac{-\sqrt{3}(a-1)}{a+1}=-\sqrt{3}$$

37) $\left(\frac{\sqrt{1+a}}{\sqrt{1+a}-\sqrt{1-a}}+\frac{1-a}{\sqrt{1-a^2}-1+a}\right)\left(\sqrt{\frac{1}{a^2}-1}-\frac{1}{a}\right); 0<a<1$

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

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

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

$$=\frac{1+a+\sqrt{1-a^2}+\sqrt{1-a^2}+1-a}{2a}\cdot\frac{\sqrt{1-a^2}-1}{a}=$$

$$=\frac{2+2\sqrt{1-a^2}}{2a}\cdot\frac{\sqrt{1-a^2}-1}{a}=\frac{\sqrt{1-a^2}+1}{a}\cdot\frac{\sqrt{1-a^2}-1}{a}=\frac{1-a^2-1}{a^2}=-1$$

38) $\left(\frac{a^{-\frac{2}{3}}}{b^{-1}}-\frac{b^{-1}}{a^{-\frac{2}{3}}}\right):\left(\frac{a^{-\frac{1}{3}}}{b^{-\frac{1}{2}}}-\frac{b^{-\frac{1}{2}}}{a^{-\frac{1}{3}}}\right)-a^{\frac{1}{3}}\cdot b^{-\frac{1}{2}}; a>0.b>0$

$$=\left(\frac{b}{\sqrt[3]{a^2}}-\frac{\sqrt[3]{a^2}}{b}\right):\left(\frac{\sqrt{b}}{\sqrt[3]{a}}-\frac{\sqrt[3]{a}}{\sqrt{b}}\right)-\frac{\sqrt[3]{a}}{\sqrt{b}}=\left(\frac{b^2-a\sqrt[3]{a}}{b\sqrt[3]{a^2}}:\frac{b-\sqrt[3]{a^2}}{\sqrt{b}\sqrt[3]{a}}\right)-\frac{\sqrt[3]{a}}{\sqrt{b}}=$$

$$=\frac{\left(b^2-a\sqrt[3]{a}\right)\left(\sqrt{b}\sqrt[3]{a}\right)}{\left(b-\sqrt[3]{a^2}\right)\left(b\sqrt[3]{a^2}\right)}-\frac{\sqrt[3]{a}}{\sqrt{b}}=\frac{b^2\sqrt{b}\sqrt[3]{a}-a\sqrt{b}\sqrt[3]{a^2}}{b^2\sqrt[3]{a^2}-b\sqrt[3]{a^4}}-\frac{\sqrt[3]{a}}{\sqrt{b}}=$$

$$=\frac{\sqrt{b}\left(b^2\sqrt{b}\sqrt[3]{a}-a\sqrt{b}\sqrt[3]{a^2}\right)-\sqrt[3]{a}\left(b^2\sqrt[3]{a^2}-b\sqrt[3]{a^4}\right)}{\sqrt{b}\left(b^2\sqrt[3]{a^2}-b\sqrt[3]{a^4}\right)}=\frac{b^3\sqrt[3]{a}-ab\sqrt[3]{a^2}-ab^2+ab\sqrt[3]{a^2}}{b^2\sqrt{b}\sqrt[3]{a^2}-ab\sqrt{b}\sqrt[3]{a}}=$$

$$=\frac{b^2\left(b\sqrt[3]{a}-a\right)}{b\sqrt{b}\sqrt[3]{a}\left(b\sqrt[3]{a}-a\right)}=\frac{b}{\sqrt[3]{a}\sqrt{b}}=\frac{\sqrt{b}}{\sqrt[3]{a}}$$

39) $\left(\frac{1}{\sqrt{y-1}}+\frac{1}{\sqrt{y+1}}\right):\left[\left(\sqrt{y-1}\right)^{-1}-\left(\sqrt{y+1}\right)^{-1}\right]; y>0$

$$=\left(\frac{\sqrt{y-1}}{y-1}+\frac{\sqrt{y+1}}{y+1}\right):\left(\frac{\sqrt{y-1}}{y-1}-\frac{\sqrt{y+1}}{y+1}\right)=$$

$$=\left(\frac{\sqrt{y-1}(y+1)+\sqrt{y+1}(y-1)}{(y-1)(y+1)}\right):\left(\frac{\sqrt{y-1}(y+1)-\sqrt{y+1}(y-1)}{(y-1)(y+1)}\right)=$$

$$=\frac{y\sqrt{y-1}+\sqrt{y-1}+y\sqrt{y+1}-\sqrt{y+1}}{(y-1)(y+1)}\cdot\frac{(y-1)(y+1)}{y\sqrt{y-1}+\sqrt{y-1}-y\sqrt{y+1}+\sqrt{y+1}}=$$

$$=\frac{(y+1)\sqrt{y-1}+\sqrt{y+1}(y-1)}{(y+1)\sqrt{y-1}-\sqrt{y+1}(y-1)}=\frac{\left[(y+1)\sqrt{y-1}+\sqrt{y+1}(y-1)\right]^2}{(y+1)^2(y-1)-(y-1)^2(y+1)}=$$

$$=\frac{(y+1)^2(y-1)+2(y+1)(y-1)\sqrt{y-1}\sqrt{y+1}+(y-1)^2(y+1)}{(y+1)(y-1)[(y+1)-(y-1)]}=$$

$$=\frac{(y+1)(y-1)\left[y+1+2\sqrt{y^2-1}+y-1\right]}{2(y+1)(y-1)}=$$

$$=\frac{2y+2\sqrt{y^2-1}}{2}=y+\sqrt{y^2-1}$$

40) $\left(\dfrac{\sqrt[4]{a^3}-\sqrt[4]{b^3}}{\sqrt{a}-\sqrt{b}}-\sqrt[4]{a}-\sqrt[4]{b}\right)\left(\sqrt[4]{\dfrac{a}{b}}+1\right); b\neq 0, a\neq b$

$$=\left(\frac{\left(a^{\frac{3}{4}}-b^{\frac{3}{4}}\right)\left(\sqrt{a}+\sqrt{b}\right)}{a-b}-a^{\frac{1}{4}}-b^{\frac{1}{4}}\right)\left(\frac{\sqrt[4]{a}}{\sqrt[4]{b}}+\frac{\sqrt[4]{b}}{\sqrt[4]{b}}\right)=$$

$$=\left(\frac{a^{\frac{5}{4}}+a^{\frac{3}{4}}b^{\frac{1}{2}}-a^{\frac{1}{2}}b^{\frac{3}{4}}-b^{\frac{5}{4}}}{a-b}-\frac{\left(a^{\frac{1}{4}}+b^{\frac{1}{4}}\right)(a-b)}{a-b}\right)\left(\frac{a^{\frac{1}{4}}+b^{\frac{1}{4}}}{\sqrt[4]{b}}\right)=$$

$$=\frac{a\sqrt[4]{a}+\sqrt[4]{a^3}\sqrt{b}-\sqrt{a}\sqrt[4]{b^3}-b\sqrt[4]{b}-a\sqrt[4]{a}+b\sqrt[4]{a}-a\sqrt[4]{b}+b\sqrt[4]{b}}{a-b}\cdot\frac{\sqrt[4]{a}+\sqrt[4]{b}}{\sqrt[4]{b}}=$$

$$=\frac{\sqrt[4]{a^3}\sqrt[4]{a}\sqrt{b}+\sqrt[4]{a^3}\sqrt{b}\sqrt[4]{b}-\sqrt{a}\sqrt[4]{a}\sqrt[4]{b^3}-\sqrt{a}\sqrt[4]{b^3}\sqrt[4]{b}+b\sqrt[4]{a}\sqrt[4]{a}+b\sqrt[4]{a}\sqrt[4]{b}-a\sqrt[4]{a}\sqrt[4]{b}-a\sqrt[4]{b}\sqrt[4]{b}}{\sqrt[4]{b}(a-b)}=$$

$$=\frac{b\sqrt[4]{a}\sqrt[4]{b}-a\sqrt[4]{a}\sqrt[4]{b}}{\sqrt[4]{b}(a-b)}=\frac{-\sqrt[4]{a}(a-b)}{a-b}=-\sqrt[4]{a}$$

41) $\left(-6z^4+10z^3+7z^2-5z+3\right):\left(-2z^2+3\right)=3z^2-5z+1+\dfrac{10z}{3-2z^2}$

$\underline{+6z^4 - 9z^2}$

$10z^3 - 2z^2 - 5z + 3$

$\underline{-10z^3 + 15z}$

$-2z^2 + 10z + 3$

$\underline{+2z^2 - 3}$

$10z$

42) $\left(x^3 + 9x^2 + 12x - 16\right) : \left(0{,}5x^2 - 3x - 4\right) = 2x + 30 + \dfrac{110x + 104}{0{,}5x^2 - 3x - 4}$

$\underline{-x^3 + 6x^2 + 8x}$

$15x^2 + 20x - 16$

$\underline{-15x^2 + 90x + 120}$

$110x + 104$

43) $\left(a^5 - 2a^4b - 4a^3b^2 - 5a^2b^3 - 23ab^4 - 7b^5\right) : \left(3ab^2 + a^3 + b^3\right) =$

$\left(a^5 - 2a^4b - 4a^3b^2 - 5a^2b^3 - 23ab^4 - 7b^5\right) : \left(a^3 + 3ab^2 + b^3\right) = a^2 - 2ab - 7b^2$

$\underline{-a^5 - 3a^3b^2 - a^2b^3}$

$-2a^4b - 7a^3b^2 - 6a^2b^3 - 23ab^4 - 7b^5$

$\underline{+2a^4b + 6a^2b^3 + 2ab^4}$

$-7a^3b^2 - 21ab^4 - 7b^5$

$\underline{+7a^3b^2 + 21ab^4 + 7b^5}$

0

44) $\left(2x^7 + 3x^6 + 14x^5 + 10x^4 - 7x^3 - 32x^2 + 15x - 5\right) : \left(x^4 + 7x^2 - 3x + 1\right) = 2x^3 + 3x^2 - 5$

$\underline{-2x^7 - 14x^5 + 6x^4 - 2x^3}$

$3x^6 + 16x^4 - 9x^3 - 32x^2 + 15x - 5$

$\underline{-3x^6 - 21x^4 + 9x^3 - 3x^2}$

$-5x^4 - 35x^2 + 15x - 5$

$\underline{+5x^4 + 35x^2 - 15x + 5}$

0

45) $\left(12z^6 - 7z^4 + 32z^3 - 13z^2 - 24z\right) : \left(8z^3 + 4z^2 - 12z\right)$

$\underline{-12z^6 + 18z^4 - 6z^5}$

$-6z^5 + 11z^4 + 32z^3 - 13z^2 - 24z$

$\underline{+6z^5 + 3z^4 - 9z^3}$

$14z^4 + 23z^3 - 13z^2 - 24z$

$\underline{-14z^4 - 7z^3 + 21z^2}$

$16z^3 + 8z^2 - 24z$

$\underline{-16z^3 - 8z^2 + 24z}$

0

46) $\left(4a^4 - 14a^3b - 24a^2b^2 - 54b^4\right) : \left(a^2 - 3ab - 9b^2\right) = 4a^2 - 2ab + 6b^2$

$\underline{-4a^4 + 12a^3b + 36a^2b^2}$

$-2a^3b + 12a^2b^2 - 54b^4$

$\underline{+2a^3b - 6a^2b^2 - 18ab^3}$

$6a^2b^2 - 54b^4 - 18ab^3$

$\underline{-6a^2b^2 + 54b^4 + 18ab^3}$

0

47) $\left(15m^4 - m^3 - m^2 + 41m - 70\right) : \left(3m^2 - 2m + 7\right) = 5m^2 + 3m - 10$

$\underline{-15m^4 + 10m^3 - 35m^2}$

$9m^3 - 36m^2 + 41m - 70$

$\underline{-9m^3 + 6m^2 - 21m}$

$-30m^2 + 20m - 70$

$\underline{+30m^2 - 20m + 70}$

0

48) $\left(a^5-2a^4b-4a^3b^2-5a^2b^3-23ab^4-7b^5\right):\left(3ab^2+a^3+b^3\right)=$

$\left(28x^5y-13x^4y^2-26x^3y^3+15x^2y^4\right):\left(7x^3y+2x^2y^2-5xy^3\right)=4x^2-3xy$

$\underline{-28x^5y-8x^4y^2+20x^3y^3}$

$-21x^4y^2-6x^3y^3+15x^2y^4$

$\underline{+21x^4y^2+6x^3y^3-15x^2y^4}$

0

49) $\left(17x^2-6x^4+5x^3-23x+7\right):\left(7-3x^2-2x\right)=$

$\left(-6x^4+5x^3+17x^2-23x+7\right):\left(-3x^2-2x+7\right)=2x^2-3x+1$

$\underline{+6x^4+4x^3-14x^2}$

$9x^3+3x^2-23x+7$

$\underline{-9x^3-6x^2+21x}$

$-3x^2-2x+7$

$\underline{+3x^2+2x-7}$

0

50) $\left(13x^2y^3+9x^5-21xy^4+6y^5-15x^4y-8x^3y^2\right):\left(2x^2y+3y^3+3x^3\right)=$

$\left(9x^5-15x^4y-8x^3y^2+13x^2y^2-21xy^4+6y^5\right):\left(3x^3+2x^2y+3y^3\right)=3x^2-7xy+2y^2$

$\underline{-9x^5-6x^4y-9x^2y^3}$

$-21x^4y-8x^3y^2+4x^2y^3-21xy^4+6y^5$

$\underline{+21x^4y+14x^3y^2+21xy^4}$

$6x^3y^2+4x^2y^3+6y^5$

$\underline{-6x^3y^2-4x^2y^3-6y^5}$

0