

54.  $\frac{2x+4}{6y+3} \cdot \frac{6x-12}{8x+4} \cdot \frac{10y+5}{x^2-4}$
55.  $\frac{a^2b+ab^2}{a+3} \cdot \frac{2a^2-18a}{2a^2b+2a^2b^2}$
56.  $\frac{4x}{2a} \cdot \frac{y}{3b} \cdot \left(\frac{4x}{2a} + \frac{y}{3b}\right) + \left(\frac{5x}{a} - \frac{y}{3b}\right)$
57.  $\frac{49a^2b^2}{a^2-b^2} \cdot \left[\frac{x}{2a} + \frac{y}{3b}\right]^2 - \left(\frac{x}{2b} + \frac{y}{3a}\right)$
58.  $(3x+2) \cdot \frac{5x-1}{3x+2} - \frac{3x-4}{3-2x} - \frac{5x^2+8x-20}{6x^2-5x-6}$
59.  $(a-b) \cdot \frac{3a+2b}{4a-4b} - \frac{2b}{5a+5b} - \frac{0,25b^2+2,25ab}{b^2-a^2}$
60.  $\frac{36x^2y-30xy^2}{x-y} : 6xy$
61.  $\frac{5a^2-4ab}{9x} : \frac{4b-5a}{-a}$
62.  $\frac{a^2-b^2}{a-b} : (a^2+2ab+b^2)$
63.  $\frac{16x^2-49y^2}{-x-7y} : (4x+7y)^2$
64.  $\frac{7x}{5y} + \frac{12x}{4y} : 22xy$
65.  $(a^2-9) : \frac{a^2+3a}{a^2-3a}$
66.  $\frac{2a^2-4a+2}{3a^2+3a-6} : \frac{9a^2+18a+9}{2a^2-2a-4}$
67.  $\frac{2a^3-a}{2a^2+4a} : \frac{a^2-4}{a^2-1} : \frac{2a^2+4a+2}{2a^2-8a+8}$
68.  $\frac{2a-2b}{a} + \frac{a}{a+b} - \frac{a}{a-b} - \frac{a+b}{a}$
69.  $\frac{240x^2}{22(xy-y^2)} : \frac{5(x^2+xy)}{9x^2-4y^2}$
70.  $\frac{9x^2-4y^2}{16x^2-24xy+9y^2} : \frac{3x-2y}{4x-3y} : \frac{3x+2y}{8x-6y}$
71.  $\frac{a^2+a-12}{a^2+2a-8} : \frac{a^2+3a-10}{(a+5)^2}$
72.  $\frac{-6x-4}{9x^2-4} : \frac{30y-15a}{5a^2x-20xy^2}$
73.  $\frac{28a^2b^2}{50xy} : \frac{4a^2b^2}{3x^2y} - \frac{12a^2b^4}{10xy^4} : 10xy$
74.  $\frac{30xz+40yz+36ax+48ay}{6x+8y}$
75.  $(8ab+16ac+12bx+24cx) : (2b+4c)$
76.  $\left(\frac{12c}{x} + \frac{12bc}{ay} - \frac{6ad}{b} - \frac{6dx}{y}\right) : \left(\frac{6a}{2b} + \frac{3x}{y}\right)$
77.  $\left(\frac{5z}{3} - \frac{175mxy}{36acd} + \frac{12acd}{5xy} - 7mn\right) : \left(\frac{25xy}{9a} + \frac{8acd}{2a}\right)$
78.  $\left[\frac{80(a^2-9b^2)}{ab} + \frac{64(a+3b)}{9a} - \frac{32(a-3b)}{5b}\right] : 16(a^2-9b^2)$
79.  $\frac{3}{4} \cdot x^3y^6z^8 \cdot \frac{1}{3} \cdot x^3y^4z^2$
80.  $\frac{c^2b^5}{x^4y^3} \cdot \frac{x^2y^4}{c^4d}$
81.  $(x^4-x) \cdot (x^2+x^5)$
82.  $x^6 \cdot x^9$
83.  $x^a \cdot b \cdot x^a - b$
84.  $a^{6x+7y} \cdot a^{7x-3y}$
85.  $(x+y)^{2x-3} \cdot (x+y)^{4x+6}$
86.  $a^x + a \cdot 2 \cdot d^{3x-2a} + 3n^{2x-3y} \cdot 5n^{3x+y}$
87.  $2b^3c^4 \cdot (4x-6x^2y+7x^4y)$
88.  $(4x^4+2ab^2) \cdot (4x^4-2ab^2)$
89.  $\frac{4x^4}{7a} \cdot \frac{7x^2}{9a} \cdot \frac{3x^5}{4a^2}$
90.  $\frac{y^n \cdot x^{n+2}}{x^n \cdot y^{n-2}}$
91.  $\frac{a^{2x} + y \cdot b^x - 2y \cdot c^x - 2y}{a^{2x} \cdot b^x \cdot c^x}$
92.  $\frac{a^4b^8}{a^3c^2} : b^4c^3$
93.  $\frac{y^3z^2}{y^3z^4} : \frac{y^2z^5}{y^2z^3}$
94.  $\frac{x^a+1}{x^a-1} : \frac{y^{2a-3}}{y^3}$
95.  $\frac{4d^2b-6}{a^2c^4} : \frac{12d^3b-8}{a^3c^3}$
96.  $\left(\frac{13b^7}{10x^5} : \frac{13b^4}{15x^6}\right) - \left(\frac{24b^5c}{13cx^4} : \frac{4}{13x^7}\right)$
97.  $\frac{(x+n)^2}{(n+x)^3} \cdot \frac{(a+b)^4}{(b+a)^8}$
98.  $\left[\frac{(4xy)^{-8} \cdot y^{-8}}{(4xy)^{-6}} \cdot \frac{a^5 \cdot 2x^2}{3(ax)^3} : \frac{5a^2x^{-4}}{16y^4}\right]^{-2}$
99.  $\frac{24x^m + x + 28x^2y^m - 36x^ny^m - 42y^{m+2}}{6x^m + 7y^m}$
100. a)  $(x^2y)^3 \cdot 4b$  b)  $[(x^2n)^m]^{-3}$  c)  $[(-a)^{10}]^3$
101.  $(c^{2a+5b})^{2x-5b}$
102.  $\frac{(3x^2y^{-3})^3}{5a^2b^{-5}} : \left(\frac{3ax^{-2}}{5b^{-2}y^2}\right)^3$
103.  $\frac{40x^3a+7y^{4b+3}}{4x^{3a+3} \cdot y^{4b}} \cdot \frac{250x^{a+3} \cdot y^{8b+5}}{10x^{a+1} \cdot y^{6b+1}}$
104.  $2^2(b^2)^5 - 2(b^2)^3$
105.  $\left(\frac{2b^{-3}}{3a^{-2}}\right)^3 \cdot \left(\frac{a^{-3}}{b^{-2}}\right)^3 : \left(\frac{2a}{3b}\right)^3$
106.  $\frac{[(5n)^{3b}]^x}{(5n)^{2bx} \cdot (4c)^{bx}}$
107.  $\frac{2a}{x^4} \cdot \left(\frac{x^{-3}}{a^{-2}}\right)^{-2} \cdot \left(\frac{2a^{-3}}{5x^{-3}}\right)^{-1}$
108.  $\left(\frac{17,352x^{-2n}}{5,71ab^2c^3}\right)^0 : 3 \left(\frac{x^{-\frac{1}{3}} a^7 c^6}{bx^6}\right)^0$
109.  $\left[\frac{(x+y)^2}{c^2-d^2}\right]^3 \cdot \left(\frac{c+d}{x+y}\right) \cdot \left(\frac{c-d}{x+y}\right)^3$
110.  $\left(\frac{5}{3}\right)^{-5} \cdot \left(\frac{25}{27}\right)^5$
111.  $(5^3)^3 \cdot 2^3 \cdot 4^3$
112.  $3^5 \cdot 6^5 \cdot \left(\frac{1}{18}\right)^5$
113.  $\left(\frac{3}{4}xy + \frac{1}{3}ab\right)^2$
114.  $(3x+4y)^3$
115.  $\frac{(a-b)^{3-x}}{(a+b)^{3-x}}$
116.  $(2a^2c^4 - 3d^2c^3)^2 - (3a^2c^4 - 2d^2c^3)^2$
117.  $\frac{3b^{-3} - 5b^{-5}}{a^{-3} - a^{-5}}$
118.  $(a^6 - 1) : (a - 1)$
119.  $(y^4a - x^4b) : (y^a + x^b)$
120.  $(x^{2a} + 1 + x^{2ay}) : (x + y)$
121.  $\left(\frac{2}{5}x^{-4}y^3 + \frac{3}{4}x^6y^{-3}\right)^2 - \left(\frac{5}{2}x^3y^{-4} - \frac{1}{3}x^{-3}y^6\right)^2$
122.  $\left[\frac{24(c^2x^{-2})^5}{70b^{-5}(y^2)^{-5}} \cdot \frac{14(a^{-3}n^0)^{-1}}{15x^5(y^4)^{-5}}\right] : (2b^3y^2)^{-6}$
123.  $\frac{2x-6y}{2x^2-2y^2} \cdot \frac{x+y}{x} + \frac{3xy-y^2}{x^2+y^2-2xy} : \left[2x-2y \cdot \left(\frac{a^2y^3}{a-b}\right)^0\right]$
124.  $\left[\frac{(6b^3x^2)^{-3}}{(15b^0y^{-2})^5} \cdot \frac{(2ax^2)^4}{(25a^{-2}y^6)^{-3}}\right] : \frac{(5a^{-1}c^0)^{-3}}{(9x^2y^{-3})^4}$
125.  $x^{2a-b} \cdot b^{-2b+a} \cdot x^{2b-3a} \cdot b^{-2a+3b+5} \cdot x^{3a+2b} \cdot b^{-3a+b} \cdot x^{-2a-10} \cdot b^{2b+2a+3}$

54.  $\frac{5}{2x+1}$   
 55.  $a - 3$   
 56.  $\frac{87bx^2 - 10axy}{3a^2b}$   
 57.  $\frac{49}{9}y^2 - \frac{49}{4}x^2$   
 58.  $\frac{4x^2 + 19x - 31}{3 - 2x}$   
 59.  $\frac{27a^2 - 50ab + 23b^2}{20(a+b)}$   
 60.  $\frac{6x-5y}{x-y}$   
 61.  $\frac{a^3}{9x}$   
 62.  $\frac{1}{a+b}$   
 63.  $\frac{1}{4x+7y}$   
 64.  $\frac{1}{5y^2}$   
 65.  $(a-3)^2$   
 66.  $\frac{4(a-1)(a-2)}{27(a+2)(a+1)} = \frac{4(a^2-3a+2)}{27(a^2+3a+2)}$   
 67.  $\frac{2(a-1)(a-2)^2}{2(a-1)(a+1)^2}$   
 68. 1  
 69.  $\frac{24x(x+y)}{11y(x-y)}$   
 70. 2  
 71.  $\frac{(a-3)(a+5)}{(a-2)^2}$   
 72.  $\frac{2x(a+2y)}{3(3x-2)}$   
 73.  $\frac{7}{10} + \frac{5a^2b}{3x^2} - \frac{3ab^2}{2y^3} = \frac{21x^2y^3 + 50a^2by^3 - 45ab^2x^2}{30x^2y^3}$   
 74.  $6a + 5z$   
 75.  $4a + 6x$   
 76.  $\frac{4bc}{ax} - 2d$   
 77.  $\frac{3az}{5xy} - \frac{7mn}{4cd}$   
 78.  $\frac{5}{ab} + \frac{9a}{a-3b} - \frac{4}{5b(a+3b)}$   
 79.  $\frac{1}{4}x^3y^2z^3$   
 80.  $\frac{d^4y^2}{cx^2}$   
 81.  $x^9 - x^3$   
 82.  $x^{15}a$   
 83.  $x^2a$   
 84.  $a^{13}x + 4y$   
 85.  $(x+y)^{6x+3}$   
 86.  $2a^4x - a + 15n^5x - 2y$   
 87.  $8b^3c^4x - 12b^2c^2x^2y + 14b^3c^4x^4y$   
 88.  $16x^3 - 4a^2b^4$   
 89.  $\frac{x^{11}}{3a^{11}}$   
 90.  $x^2y^2$   
 91.  $\frac{avc^3x-4y}{b^2z}$   
 92.  $\frac{ab^3}{c^5}$   
 93.  $\frac{y^5}{z^5}$   
 94.  $\frac{y^{a-5}}{x}$   
 95.  $\frac{b^2c^7d}{3a}$   
 96.  $-\frac{9}{2}b^3x^3$   
 97.  $(n+x)^5 \cdot (a+b)^4$   
 98. 14400  
 99.  $4x^x - 6y^c$   
 100. a)  $4x^4y^{21}b \frac{1}{x^{4n}c} - a^{15}$   
 101.  $c^4x^2 - 25bz$   
 102.  $\frac{a^3b^3}{y^3}$   
 103.  $10x^4y^3 - 25x^2y^{2b+4}$   
 104.  $2b^{15}$   
 105.  $\frac{a^5}{b^8}$   
 106.  $\left(\frac{5n}{4c}\right)^{bx}$   
 107. 5  
 108.  $\frac{1}{3}$   
 109. 1  
 110. 32  
 111. 1 Milliarde  
 112. 1  
 113.  $\frac{9}{16}x^2y^2 + \frac{1}{2}abxy + \frac{1}{9}a^2b^2$   
 114.  $27x^3 + 108x^2y + 144xy^2 + 64y^3$   
 115.  $\left(\frac{a-b}{a+b}\right)^{9-3x}$   
 116.  $5a^2c^5 - 5a^6c^8$   
 117.  $\frac{27a^9}{b^9} - \frac{135a^{11}}{b^{11}} + \frac{225a^{13}}{b^{13}} - \frac{125a^{15}}{b^{15}}$   
 118.  $a^5 + a^4 + a^3 + a^2 + a + 1$   
 119.  $y^{2a} - x^b y^{2a} + x^{2b} y^a - x^3b$   
 120.  $x^{2a}$   
 121.  $\frac{9x^{12}}{25x^5} - \frac{16y^4}{25x^5} + \frac{4y^4}{25x^5} - \frac{16y^4}{25x^5} + \frac{9x^{12}}{25x^5} - \frac{16y^4}{25x^5} + \frac{4y^4}{25x^5}$   
 122.  $\frac{a^7}{64x^2y^3}$   
 123.  $\frac{3(x+y)}{5}$   
 124.  $\frac{50x^{14}y^{10}}{x^2y^3}$   
 125.  $x^{-5}y^{-10}z^{-4} - z^{-2}$