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- 34  $\frac{(a+b)^2 - 2(a+b) + 1}{(a+b)^2 - 1} \cdot \left[ a+b-1 + \frac{4(a+b)}{a+b-1} \right]$  [a+b+1]
- 35  $\frac{xy+y+ax+a}{3y^2-2ay-a^2} : \left( \frac{1}{y-a} - \frac{1}{3y+a} \right) +$   
 $+\frac{xy+y-2ax-2a}{2y^2+ay-a^2} : \left( \frac{1}{y+a} - \frac{1}{2y-a} \right)$  [ $\frac{3(x+1)}{2}$ ]
- 36  $\left( \frac{1}{8b^3+1} - \frac{1}{2b+1} \right) \frac{64b^6-1}{2b^2-1} - \left( \frac{1}{8b^3-1} - \frac{1}{2b-1} \right) \cdot \frac{64b^6-1}{2b^2+b}$  [4]
- 37  $\left[ \frac{x+1}{x-1} - \frac{(x+1)(a-1)}{(x-1)(a-2)} \right] : \frac{x^2-1}{ax-2x-a+2}$  [ $\frac{1}{1-x}$ ]
- 38  $\left[ \left( x + \frac{a^2}{x-a} \right) : \left( x - \frac{2ax-a^2}{x+a} \right) - \frac{a(3x-5a)}{(x-2a)(x-a)} \right] : \frac{x^2-9a^2}{x^2-4a^2}$  [ $\frac{x+2a}{x+3a}$ ]
- 39  $\left[ \left( \frac{x}{x^2y+1} + \frac{x}{x^2y-1} \right) : \left( \frac{x}{x^2y+1} - \frac{x}{x^2y-1} \right) + y \right] : (x^2-1)$  [-y]
- 40  $\left[ \left( \frac{1}{a^3y+y} - \frac{1}{a^3y-y} \right) : \left( \frac{1}{a^3y+y} + \frac{1}{a^3y-y} \right) + 1 \right] \cdot \frac{a^2}{(a+1)^2-a}$  [ $\frac{a-1}{a}$ ]
- 41  $\left( \frac{1}{a^2} + \frac{1}{y^2} - \frac{4}{a^2+y^2} \right) \left( \frac{a+y}{a^2-ay} + \frac{a-y}{a^2+ay} \right) : \left( \frac{a}{y} - \frac{y}{a} \right)$  [ $\frac{2}{a^2y}$ ]
- 42  $\left[ \frac{2(a^2-1)+3(a+1)}{a^2+2a+1} - \frac{a^2-1-3(a-1)}{a^2-2a+1} \right] : \frac{a^2+1}{1-a^2}$  [-1]
- 43  $\left[ \left( \frac{y}{x} - \frac{x}{y} - \frac{x+y}{x-y} \right) : \frac{y^3-xy^2+x^2y}{x^2-xy} + \frac{1}{y} + \frac{1}{y^2} \right] \cdot \frac{y^2}{1-x^2}$  [ $\frac{1}{1+x}$ ]
- 44  $\left[ \left( \frac{1}{2ax-2x+3a-3} + \frac{1}{2ax-2x-3a+3} \right) : \frac{x}{4x^2-9} - \frac{3a+5}{a^2-1} \right]$  [ $\frac{1}{a+1}$ ]
- 45  $\left[ \frac{y^3-1}{y^3-8} : \frac{(y+1)^2-y}{(y+2)^2-2y} - \frac{1-y}{y^2-4y+4} \right] : \left( y - \frac{1}{2-y} \right)$  [ $\frac{1}{y-2}$ ]
- 46  $\left[ \left( 2 - \frac{y}{y+2} \right) : \left( 1 + \frac{1}{y+3} \right) - \frac{6(y+1)}{y^2+4y+4} \right]$   
 $\cdot \left[ \frac{3y^2+6y+6}{3(y^2-1)} + \frac{2+y}{3y+3} - \frac{y}{y-1} \right]$  [ $\frac{y}{3(y+1)}$ ]

$$47 \quad \frac{\frac{1}{b-5} + \frac{1}{b-4}}{\frac{1}{b-5} - \frac{1}{b-4}} : \frac{2bx + 2by - 9x - 9y}{x^2 - y^2} \quad [x - y]$$

$$48 \quad \left( \frac{x^2 - 2 + \frac{1}{x^2}}{x - \frac{1}{x}} - \frac{x+1}{1 + \frac{2}{x}} \right) \cdot \frac{1 + \frac{2}{x}}{1 - \frac{2}{x}} \quad \left[ \frac{x+1}{x} \right]$$

$$49 \quad \frac{\left( \frac{x}{3ay+y} - \frac{y}{3ax+x} \right) \left( \frac{a+1}{x+y} + \frac{a-1}{x-y} \right)}{\left( \frac{a}{y} - \frac{1}{x} \right) : \left( 3 + \frac{1}{a} \right)} \quad \left[ \frac{2}{a} \right]$$

$$50 \quad \left( \frac{x}{2 - \frac{2}{1-x}} - \frac{1}{1 - \frac{x+1}{x-1}} \right) \cdot \frac{1}{x^2} \left( \frac{x^3}{x-1} - x^2 \right) \quad [1]$$

$$51 \quad \frac{1}{12a} \cdot \left( \frac{1 + \frac{1}{2a}}{\frac{1}{2} + \frac{1}{4a}} \right)^2 - \frac{a}{4a^2+1} + \frac{1+4a^2}{2+4a^2 + \frac{1}{4a^2}} \quad \left[ \frac{1}{3a} \right]$$

$$52 \quad \left[ \left( \frac{\frac{a}{1 + \frac{1}{a-1}} + \frac{a+2}{1 + \frac{1}{a+1}}}{\frac{a^2+3a}{a-1} + \frac{a-1}{a-3}} \right) : \frac{a^2-2a+1}{a^2-9} \right] \quad [3]$$

$$53 \quad \left[ \frac{\frac{3y^2}{1 + \frac{2}{y^2-1}} - \frac{2y^2(4y^2-5)}{3y^2+3}}{\left( \frac{1}{y} - \frac{1}{y-3} \right)} \right] \quad \left[ \frac{y}{3-y} \right]$$

$$54 \quad \frac{1 - \frac{a+b}{a-2b}}{1 + \frac{a-b}{a+2b}} : \left( \frac{b}{2a+b} - \frac{2b}{a-2b} \right) - \frac{2b}{3a+4b} \quad [1]$$

$$55 \quad \frac{\frac{2a}{b} + \frac{b}{2a}}{\frac{2a}{b} - \frac{b}{2a}} - a \left( \frac{1}{2a+b} + \frac{1}{2a-b} + \frac{2b}{4a^2-b^2} \right) \quad \left[ \frac{-b}{2a+b} \right]$$

$$56 \quad \left(1 + \frac{a + \frac{1}{a}}{a}\right) : \left(1 - \frac{a - \frac{1}{a}}{a}\right) \cdot \left(1 - \frac{a + \frac{1}{a}}{a}\right) : \left(1 + \frac{a - \frac{1}{a}}{a}\right) \cdot \left[\frac{2a^2 + 1}{1 - 2a^2}\right]$$

$$57 \quad \left[\frac{y^2 - 3y + 9}{3y - 6} \left(\frac{y^2 - 5}{y^2 + 7} - \frac{1}{y + 3}\right) - \frac{2}{y + 2}\right] : \frac{1 + \frac{4}{y}}{1 - \frac{4}{y^2}} \cdot \left[\frac{2 - y}{y(y + 3)}\right]$$

$$58 \quad \left(\frac{x^2}{ax + 1} - \frac{x^2}{ax - 1} + \frac{1}{a^2 - 1}\right) : \frac{a^2x^2 - 2x^2 + 1}{a^2x - ax + a - 1} + \frac{1}{a^2x + ax - a - 1} \cdot [0]$$

$$59 \quad \left[\left(\frac{x^2}{1 - \frac{a}{x + a}} + \frac{a^2}{1 - \frac{x}{x + a}}\right) : \frac{x^2 + 2ax + a^2}{x - 2a} + \frac{3a^2}{x + 2a}\right] : \frac{1 - \frac{a^2}{x^2}}{1 - \frac{4a^2}{x^2}} \cdot [x - 2a]$$

$$60 \quad \left(\frac{2}{3y - 1} - \frac{y}{y^2 + 1}\right) \cdot \left(\frac{y + 1}{y - 2} - \frac{y}{y + 1} - \frac{y + 2}{y^2 - y - 2}\right) + \frac{1}{2y^2 + 2} \cdot \left[\frac{-1}{2(y^2 + 1)}\right]$$

$$61 \quad \left[\frac{4 - \frac{4}{b} + \frac{1}{b^2}}{4 + \frac{4}{b} + \frac{1}{b^2}} + \frac{2\left(2 - \frac{1}{b}\right)}{2 + \frac{1}{b}} + 1\right] \frac{2ab - 2b + a - 1}{4ab + 4b} + \frac{8b}{2ab + 2b + a + 1} \cdot \left[\frac{4b}{2b + 1}\right]$$

$$62 \quad \left[\frac{\frac{a^2 + b^2 + 2ab - 9}{a^2 - b^2 - 6a + 9}}{\frac{a^2 + ab - 3a}{3a^2 - 9a - 3ab}} - \frac{3(a - b - 3)}{a - b + 3}\right] \cdot \frac{a + b - 3}{4a} \cdot \left[\frac{9}{a - b + 3}\right]$$

$$63 \quad \frac{\left(\frac{x + 2}{3 - 3x^2} + \frac{1}{2x - 2} + \frac{1}{3x + 3}\right) : \left(\frac{x^2}{1 + x^3} - \frac{1}{1 + x}\right) - \frac{3}{2x - 2}}{\left(x - 1 + \frac{4}{1 - x}\right) \frac{x - 2}{x - 3}} \cdot \left[\frac{1}{2}\right]$$

$$64 \quad \left(\frac{1}{ax - 2a} + \frac{1}{ax + 2a} + \frac{2}{x^2 - 4}\right) \cdot \left[1 + 2\left(\frac{1}{x + a} - \frac{1}{a}\right) - a\left(\frac{1}{x + a} + \frac{x}{a^2}\right)\right] \cdot \left[\frac{2x}{a^2(2 - x)}\right]$$

$$65 \quad \left[ \frac{1}{1 - \frac{1}{a-1}} + \frac{1}{1 + \frac{1}{a-1}} \right] : \left( \frac{a^2 - 2a + 1}{a} - \frac{a^2 - 2a + 1}{a-2} \right) \quad [-1]$$

$$66 \quad \frac{1 + \left( \frac{ax + bx - 1}{ax + bx} - \frac{ax - bx - 1}{ax - bx} \right) : \left( \frac{x}{a+b} - \frac{x}{a-b} \right)}{\left( \frac{1}{x} + 1 \right) \left( \frac{1}{x} - 1 \right)} \quad [-1]$$

$$67 \quad \frac{\left( \frac{1}{4a^2 + 4a + 1} + \frac{1}{4a^2 - 4a + 1} \right) : \frac{4a^2 + 1}{16a^4 - 8a^2 + 1} + \frac{a+1}{a-1}}{3a + 5 + \frac{4}{a-1}} \quad \left[ \frac{1}{a+1} \right]$$

$$68 \quad \frac{\left[ \frac{1}{y^2 - x^2 - 1 + 2x} - \frac{1}{y^2 - x^2 - 1 - 2x} \right] : \left( \frac{1}{y+x-1} - \frac{1}{y+x+1} \right)}{\frac{x}{(y-x)^2 - 1}} \quad [-2]$$

$$69 \quad \frac{\frac{1}{a^2 - 4b^2 + 12b - 9} - \frac{1}{a^2 + 4b^2 - 9 + 4ab}}{\frac{a^2 - 4b^2}{a^2 + 9 - 4b^2 + 6a}} : \frac{4}{a + 2b - 3} \quad \left[ \frac{b}{a^2 - 4b^2} \right]$$

$$70 \quad \frac{x-1 - \frac{x+1 + \frac{1}{x-1}}{x-1}}{1 - \frac{x-1 + \frac{1}{x-1}}{x-1}} : \left[ x(x-1) - 2x - \frac{1}{x-1} \right] \quad [1-x]$$

$$71 \quad \frac{\left( 2b+1 - \frac{b^2+1}{b-1} \right) \left( 2b-1 - \frac{b^2-2}{b+1} \right) : (b^3-1)}{\frac{b+1}{b-1} - \frac{b^2-b+1}{b^2-2b+1}} \quad [1]$$

$$72 \quad \frac{\left( \frac{2}{x} - \frac{x+1}{x^2} + \frac{x^2-1}{x^3} \right) : \left( \frac{1}{x-1} + \frac{x+2}{x^2-2x+1} - \frac{2x^2-x-2}{x^3-3x^2+3x-1} \right)}{\left( 1 - \frac{1}{x} \right)^2 \left( 2 + \frac{1}{2x} - \frac{3}{2x+4} \right)} \quad \left[ \frac{(x-1)^2(x+2)}{x+1} \right]$$

$$\frac{1 + \frac{1+x}{x^2}}{\frac{x}{x+1} - 1} \cdot \frac{x^2}{x+1} + \frac{1 + \frac{x+1}{x^2}}{1 - \frac{x}{x-1}} : \frac{1-x}{x^2}.$$

$$\left[ \left( 1 - \frac{1}{1 - \frac{1}{x-1}} \right) \left( 2 - \frac{1}{1 + \frac{1}{x-1}} \right) + \frac{1}{x-2} + \frac{1}{x} \right] \left( 1 - \frac{1}{1 - \frac{3}{x}} \right) \cdot \left( 2 + \frac{1}{1 - \frac{3}{x}} \right).$$

$$\frac{\left( 1 + \frac{1}{x-1} \right) \left( 1 + \frac{1}{\frac{1}{x} - 1} \right) + \left( 1 - \frac{1}{x+1} \right) \left( 1 - \frac{1}{\frac{1}{x} + 1} \right) + \frac{1}{(x^2 - 1)^2}}{\left( 1 + \frac{x}{x-1} \right) \left( 1 + \frac{x}{x+1} \right) : [2(x+1)^2 - (x+1)(x+3)]}$$

$$\left( \frac{1}{\frac{y^2+2y}{1} + \frac{y}{y-2}} - \frac{1}{\frac{y^2+3y}{y^2-3y} + \frac{y}{y-3}} \right) : \frac{1-y^2}{1+y^2} + \frac{2-y}{y^2+5y+6}.$$

$$\frac{\left( \frac{y}{y^3+1} - \frac{y}{y^3-1} \right) [(y^2+1)^2 - y^2] - \frac{1}{y+1} + \frac{2}{y-1}}{\frac{1}{y+1} - \frac{1}{y-1} - \left( \frac{1}{y^3+1} + \frac{1}{y^3-1} \right) : \left( \frac{y}{y^2+y+1} - \frac{y}{y^2-y+1} \right)} + \frac{y^2+1}{y^2-4y+4}.$$

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

$$\frac{\frac{(x-1)^3 - (x+1)^3}{(x-1)^2 - (x+1)^2} : \left(3x - \frac{1}{x}\right) - \frac{x^2}{3x^2-1} + \frac{x^2}{2}}{\left(\frac{1}{3x^2-1} - \frac{1}{3x^2+1}\right) : \left(\frac{1}{3x^2+1} - \frac{1}{x^2+1}\right)} \quad [0]$$

$$\frac{\left(\frac{b^2}{b^2-4b+4} - \frac{b^2+4b+4}{b^2}\right) : \left(\frac{b^2}{b^2+1-2b} - \frac{b^2+1+2b}{b^2}\right) - \left(\frac{b-1}{b-2}\right)^2}{\left(1 + \frac{1}{b-2}\right)^2 \left(1 + \frac{4b^2}{2b^2-1}\right)} \quad \left[\frac{6b^2-15}{6b^2-1}\right]$$

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

$$\frac{1 - \frac{1}{x+y} + \frac{1 - \frac{1}{x-y}}{1 + \frac{2y+1}{x-y}} - \frac{1 - \frac{y^2}{(x+y)^2}}{1 - \frac{1}{(x+y)^2}} + \frac{2(y+1)}{x^2+y^2-1+2xy}}{1 : \left(\frac{1}{x-2} + \frac{y+1}{x^2-4x+4}\right)} \quad \left[\frac{1}{x+y+1}\right]$$

$$\frac{\left(\frac{x^n}{x^n-y^m} - \frac{y^m}{x^n+y^m}\right) : \frac{y^{4m}-x^{4n}}{x^{3n}y^{3m}}}{\frac{x^n-y^m-1}{1-x^{2n}+2x^ny^m-y^{2m}} \cdot \left(\frac{1}{x^ny^{3m}} - \frac{1}{x^{3n}y^m}\right)^{-1}} \quad \left[\frac{1+x^n-y^m}{x^{2n}+y^{2m}}\right]$$

$$\frac{\frac{4}{a^{2n}-a^n-2} : \left(\frac{1}{a^{2n}-3a^n+2} + \frac{1}{a^{2n}-a^n-2} - \frac{2a^m}{a^m-a^{2n+m}}\right)}{\frac{a^n+1}{2a^n-2} : \left(\frac{2a^{2n}-3a^n+1}{a^{3n}-3a^{2n}+3a^n-1} - \frac{a^n}{a^{2n}-2a^n+1} - \frac{a^{n+m}}{a^m-a^{n+m}}\right)} \quad [2]$$