1. $\dfrac{5x}{x^2-9}-\dfrac{4}{2x-6}$

2. $\dfrac{x-2}{x^2-4x+4}-\dfrac{x+2}{x^2+4x+4}$

3. $\left(\dfrac{a^2-7a}{a^2+a-2}\right)\left(\dfrac{a+2}{a^2-13a+42}\right)$

4. $\left(\dfrac{3a-6}{6a-12}\right)\div\left(\dfrac{a^2-5a+6}{3a^2-12}\right)$

5. $\dfrac{a+3}{a^2+4a}+\dfrac{a+3}{a^2+6a}$

6. $\dfrac{z-2}{z+5}+\dfrac{z-3}{z+6}$

7. $\left(\dfrac{x^2+x-2}{x^2+3x-28}\right)\cdot\left(\dfrac{x^2-9x+20}{x^2+8x+12}\right)\div\left(\dfrac{x^2-1}{x^2+7x+6}\right)$

Answers:

1. $\dfrac{3(x-2)}{(x-3)(x+3)}$, $x\neq\{-3,3\}$

2. $\dfrac{4}{(x+2)(x-2)}$, $x\neq\{-2,2\}$

3. $\dfrac{a}{(a-1)(a-6)}$, $a\neq\{-2,1,6,7\}$

4. $\dfrac{3(a+2)}{2(a-3)}$, $a\neq\{-2,2,3\}$

5. $\dfrac{2a^2+16a+30}{a(a+4)(a+6)}$, $a\neq\{-6,-4,0\}$

6. $\dfrac{2z^2+6z-27}{(z+5)(z+6)}$, $z\neq\{-6,-5\}$

7. $\dfrac{(x-5)}{(x+7)}$, $x\neq\{-7,-6,-2,-1,1,4\}$