1) $\dfrac{a^2-ab}{ab-b^2}$;

2) $\dfrac{3a^2+3ab}{6ab+6b^2}$;

3) $\dfrac{6a^2-9ab}{8a^2b-12ab^2}$;

4) $\dfrac{15a^2-10ab}{3ab-2b^2}$;

5) $\dfrac{24a^2b-36ab^2}{18a^2-12ab}$;

6) $\dfrac{12a^2b+4ab^2}{24a^3b^2+8a^2b^3}$.

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1) $\dfrac{a^2-ab}{ab-b^2}=\dfrac{a(a-b)}{b(a-b)}=\dfrac{a}{b}$;

2) $\dfrac{3a^2+3ab}{6ab+6b^2}=\dfrac{3a(a+b)}{6b(a+b)}=\dfrac{a}{2b}$;

3) $\dfrac{6a^2-9ab}{8a^2b-12ab^2}=\dfrac{3a(2a-3b)}{4ab(2a-3b)}=\dfrac{3}{4b}$;

4) $\dfrac{15a^2-10ab}{3ab-2b^2}=\dfrac{5a(3a-2b)}{b(3a-2b)}=\dfrac{5a}{b}$;

5) $\dfrac{24a^2b-36ab^2}{18a^2-12ab}=\dfrac{12ab(2a-3b)}{6a(3a-2b)}=\dfrac{2b(2a-3b)}{3a-2b}$;

6) $\dfrac{12a^2b+4ab^2}{24a^3b^2+8a^2b^3}=\dfrac{4ab(3a+b)}{8a^2b^2(3a+b)}=\dfrac{1}{2ab}$.

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1) $\dfrac{2a^2b-2ab^2}{4a^2b-4ab^2}$; **2)** $\dfrac{a^3+a^2b}{ab^2+b^3}$;

3) $\dfrac{a^4b^2-2a^3b^3}{2a^3b^2+a^2b^3}$; **4)** $\dfrac{3a^3b-3a^2b^2}{3ab^3-3a^2b^2}$;

5) $\dfrac{2a^3b-2ab^2}{4a^2b-4a^4}$; **6)** $\dfrac{2a^2b^2c^2-ac^3}{bc^2-2ab^3c}$.

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1) $\dfrac{2a^2b-2ab^2}{4a^2b-4ab^2}=\dfrac{2ab(a-b)}{4ab(a-b)}=\dfrac{1}{2}$;

2) $\dfrac{a^3+a^2b}{ab^2+b^3}=\dfrac{a^2(a+b)}{b^2(a+b)}=\dfrac{a^2}{b^2}$;

3) $\dfrac{a^4b^2-2a^3b^3}{2a^3b^2+a^2b^3}=\dfrac{a^3b^2(a-2b)}{a^2b^2(2a+b)}=\dfrac{a(a-2b)}{2a+b}$;

4) $\dfrac{3a^3b-3a^2b^2}{3ab^3-3a^2b^2}=\dfrac{3a^2b(a-b)}{3ab^2(b-a)}=\dfrac{3a^2b(a-b)}{-3ab^2(a-b)}=-\dfrac{a}{b}$;

5) $\dfrac{2a^3b-2ab^2}{4a^2b-4a^4}=\dfrac{2ab(a^2-b)}{4a^2(b-a^2)}=\dfrac{2ab(a^2-b)}{-4a^2(a^2-b)}=-\dfrac{b}{2a}$;

6) $\dfrac{2a^2b^2c^2-ac^3}{bc^2-2ab^3c}=\dfrac{ac^2(2ab^2-c)}{bc(c-2ab^2)}=\dfrac{ac^2(2ab^2-c)}{-bc(2ab^2-c)}=-\dfrac{ac}{b}$.

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1) $\dfrac{2a-2}{2a-6}-\dfrac{a+3}{3a-9}$; **2)** $\dfrac{3a^2}{6a+4}-\dfrac{2}{9a+6}$; **3)** $\dfrac{b}{2a^2-ab}-\dfrac{4a}{2ab-b^2}$; **4)** $\dfrac{4b}{3a^2+2ab}-\dfrac{9a}{3ab+2b^2}$;

5) $\dfrac{a-25}{5a-25}+\dfrac{3a+5}{a^2-5a}$; **6)** $\dfrac{1-6a}{4a^2-6a}+\dfrac{8}{6a-9}$.

1) $\frac{2a-2}{2a-6}-\frac{a+3}{3a-9}=\frac{2(a-1)}{2(a-3)}-\frac{a+3}{3(a-3)}=\frac{a-1}{a-3}-\frac{a+3}{3(a-3)}=\frac{3a-3-a-3}{3(a-3)}=\frac{2a-6}{3(a-3)}=\frac{2(a-3)}{3(a-3)}=\frac{2}{3}$;

2) $\frac{3a^2}{6a+4}-\frac{2}{9a+6}=\frac{3a^2}{2(3a+2)}-\frac{2}{3(3a+2)}=\frac{9a^2-4}{6(3a+2)}=\frac{(3a-2)(3a+2)}{6(3a+2)}=\frac{3a-2}{6}$;

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

4) $\frac{4b}{3a^2+2ab}-\frac{9a}{3ab+2b^2}=\frac{4b}{a(3a+2b)}-\frac{9a}{b(3a+2b)}=\frac{4b^2-9a^2}{ab(3a+2b)}=\frac{(2b-3a)(2b+3a)}{ab(3a+2b)}=\frac{2b-3a}{ab}$;

5) $\frac{a-25}{5a-25}+\frac{3a+5}{a^2-5a}=\frac{a-25}{5(a-5)}+\frac{3a+5}{a(a-5)}=\frac{a(a-25)+5(3a+5)}{5a(a-5)}=\frac{a^2-25a+15a+25}{5a(a-5)}=\frac{a^2-10a+25}{5a(a-5)}=\frac{(a-5)^2}{5a(a-5)}=\frac{a-5}{5a}$;

6) $\frac{1-6a}{4a^2-6a}+\frac{8}{6a-9}=\frac{1-6a}{2a(2a-3)}+\frac{8}{3(2a-3)}=\frac{3-18a+16a}{6a(2a-3)}=\frac{3-2a}{6a(2a-3)}=-\frac{2a-3}{6a(2a-3)}=-\frac{1}{6a}$.

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1) $\frac{1}{6a-4}+\frac{a-1}{3a^2-2a}$;

2) $\frac{2}{3a-9}-\frac{a+1}{2a^2-6a}$;

3) $\frac{a-1}{a^2-2a}-\frac{a}{a^2-4}$;

4) $\frac{4-a}{2a-4}-\frac{2}{a^2-2a}$;

5) $\frac{a-1}{a^2-4}-\frac{2a-3}{2a^2-4a}$;

6) $\frac{a+b}{a^2b-ab^2}-\frac{a-b}{a^2b+ab^2}$.

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4) $\frac{4-a}{\quad}\quad\frac{2}{\quad}$

1) $\frac{1}{6a-4}+\frac{a-1}{3a^2-2a}=\frac{1}{2(3a-2)}+\frac{a-1}{a(3a-2)}=\frac{a+2a-2}{2a(3a-2)}=\frac{3a-2}{2a(3a-2)}=\frac{1}{2a}$; **2)** $\frac{2}{3a-9}-\frac{a+1}{2a^2-6a}=$
$\frac{2}{3(a-3)}-\frac{a+1}{2a(a-3)}=\frac{4a-3a-3}{6a(a-3)}=\frac{a-3}{6a(a-3)}=\frac{1}{6a}$; **3)** $\frac{a-1}{a^2-2a}-\frac{a}{a^2-4}=\frac{a-1}{a(a-2)}-\frac{a}{(a-2)(a+2)}=$
$\frac{(a-1)(a+2)-a^2}{a(a-2)(a+2)}=\frac{a^2+2a-a-2-a^2}{a(a-2)(a+2)}=\frac{a-2}{a(a-2)(a+2)}=\frac{1}{a(a+2)}$; **4)** $\frac{4-a}{2a-4}-\frac{2}{a^2-2a}=$
$\frac{4-a}{2(a-2)}-\frac{2}{a(a-2)}=\frac{4a-a^2-4}{2a(a-2)}=-\frac{a^2-4a+4}{2a(a-2)}=-\frac{(a-2)^2}{2a(a-2)}=-\frac{a-2}{2a}$; **5)** $\frac{a-1}{a^2-4}-\frac{2a-3}{2a^2-4a}=$
$\frac{(a-1)}{(a-2)(a+2)}-\frac{2a-3}{2a(a-2)}=\frac{2a^2-2a-(2a-3)(a+2)}{2a(a-2)(a+2)}=\frac{2a^2-2a-2a^2-4a+3a+6}{2a(a-2)(a+2)}=\frac{-3a+6}{2a(a-2)(a+2)}=$
$\frac{-3(a-2)}{2a(a-2)(a+2)}=-\frac{3}{2a(a+2)}$; **6)** $\frac{a+b}{a^2b-ab^2}-\frac{a-b}{a^2b+ab^2}=\frac{a+b}{ab(a-b)}-\frac{a-b}{ab(a+b)}=\frac{(a+b)^2-(a-b)^2}{ab(a-b)(a+b)}=$
$\frac{a^2+2ab+b^2-a^2+2ab-b^2}{ab(a-b)(a+b)}=\frac{4ab}{ab(a-b)(a+b)}=\frac{4}{a^2-b^2}$.

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1) $\frac{(5-a)^2}{6ab-b^2}\cdot\frac{b-6a}{5a^2-25a}$;

2) $\frac{(a-2)^2}{a^2-5a}\cdot\frac{2a-10}{4-a^2}$;

3) $\frac{a^2-9a}{a^2-6a+9}\cdot\frac{a^2-9}{9-a}$;

4) $\frac{a-1}{8a-2a^3}\cdot\frac{4a-2a^2}{1-a}$;

5) $\frac{(2x-3)^2}{3x+1}:\frac{9-4x^2}{6x^2+2x}$;

6) $\frac{(5-x)^2}{6xy-y^2}:\frac{5x-25}{y-6x}$;

7) $\frac{a^3-4a}{4-4a+a^2}:\frac{a^4+8a}{a^3-8}$;

8) $\frac{1-4x^2}{x^2-4x}:\frac{(2x-1)^2}{x^2-16}$;

9) $\left(\frac{2a^2-2}{a^2+ab}:\frac{1-a}{a+b}\right)\cdot\frac{1}{a^3+1}$;

10) $\left(\frac{4x^2-1}{x^2-16}\cdot\frac{x^2+4x}{(1-2x)^2}\right):\frac{8x^2+4x}{8x^3-1}$.

1) $\frac{(5-a)^2}{6ab-b^2}\cdot\frac{b-6a}{5a^2-25a}=\frac{(5-a)^2}{b(6a-b)}\cdot\frac{b-6a}{5a(a-5)}=\frac{(5-a)^2}{b(6a-b)}\cdot\frac{-(6a-b)}{-5a(5-a)}=\frac{5-a}{5ab}$; **2)** $\frac{(a-2)^2}{a^2-5a}\cdot\frac{2a-10}{4-a^2}=\frac{(a-2)^2}{a(a-5)}\cdot\frac{2(a-5)}{(2-a)(2+a)}=\frac{(a-2)^2}{a(a-5)}\cdot\frac{2(a-5)}{-(a-2)(a+2)}=\frac{-2(a-2)}{a(a+2)}=\frac{2(2-a)}{a(a+2)}$; **3)** $\frac{a^2-9a}{a^2-6a+9}\cdot\frac{a^2-9}{9-a}=\frac{a(a-9)}{(a-3)^2}\cdot\frac{(a-3)(a+3)}{-(a-9)}=\frac{a(a+3)}{3-a}$; **4)** $\frac{a-1}{8a-2a^3}\cdot\frac{4a-2a^2}{1-a}=\frac{a-1}{2a(4-a^2)}\cdot\frac{2a(2-a)}{1-a}=\frac{a-1}{2a(2-a)(2+a)}\cdot\frac{2a(2-a)}{-(a-1)}=-\frac{1}{a+2}$; **5)** $\frac{(2x-3)^2}{3x+1}:\frac{9-4x^2}{6x^2+2x}=\frac{(2x-3)^2}{3x+1}\cdot\frac{6x^2+2x}{9-4x^2}=\frac{(2x-3)^2}{3x+1}\cdot\frac{2x(3x+1)}{(3-2x)(3+2x)}=\frac{(2x-3)^2}{1}\cdot\frac{2x}{-(2x-3)(3+2x)}=\frac{2x(3-2x)}{2x+3}$; **6)** $\frac{(5-x)^2}{6xy-y^2}:\frac{5x-25}{y-6x}=\frac{(5-x)^2}{y(6x-y)}\cdot\frac{-(6x-y)}{-5(5-x)}=\frac{5-x}{5y}$; **7)** $\frac{a^3-4a}{4-4a+a^2}:\frac{a^4+8a}{a^3-8}=\frac{a(a^2-4)}{(a-2)^2}\cdot\frac{(a-2)(a^2+2a+4}{a(a^3+8)}=\frac{a(a-2)(a+2)}{(a-2)^2}\cdot\frac{(a-2)(a^2+2a+4)}{a(a+2)(a^2-2a+4)}=\frac{a^2+2a+4}{a^2-2a+4}$; **8)** $\frac{1-4x^2}{x^2-4x}:\frac{(2x-1)^2}{x^2-16}=\frac{(1-2x)(1+2x)}{x(x-4)}\cdot\frac{(x-4)(x+4)}{(2x-1)^2}=\frac{-(2x-1)(1+2x)}{x(x-4)}\cdot\frac{(x-4)(x+4)}{(2x-1)^2}=\frac{(2x+1)(x+4)}{x(1-2x)}$;

1) $\left(a-\frac{a^2+4}{4}\right)\cdot\frac{8}{4-a^2}$;

2) $\left(\frac{1}{a}-\frac{a+2}{2a+1}\right)\cdot\frac{a-4a^3}{a^2-1}$;

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

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

5) $\left(2a-\frac{10a-9}{2a-1}\right)\cdot\frac{1-2a}{9-4a^2}$;

6) $\left(1-\frac{a-3}{2a+2}\right)\cdot\frac{a+1}{a^2+5a}$;

7) $\left(1-\frac{3x}{x+1}\right)\cdot\frac{x^2-1}{1-4x^2}$;

1) $\left(a-\frac{a^2+4}{4}\right)\cdot\frac{8}{4-a^2}=\frac{4a-a^2-4}{4}\cdot\frac{8}{(2-a)(2+a)}=\frac{-(a-2)^2}{4}\cdot\frac{8}{(2-a)(2+a)}=-(a-2)^2\cdot\frac{2}{-(a-2)(2+a)}=\frac{2(a-2)}{a+2}$; **2)** $\left(\frac{1}{a}-\frac{a+2}{2a+1}\right)\cdot\frac{a-4a^3}{a^2-1}=\frac{2a+1-a^2-2a}{a(2a+1)}\cdot\frac{a(1-4a^2)}{(a-1)(a+1)}=\frac{1-a^2}{a(2a+1)}\cdot\frac{a(1-2a)(1+2a)}{(a-1)(a+1)}=1-a\cdot\frac{(1-2a)}{a-1}=-(a-1)\cdot\frac{1-2a}{a-1}=2a-1$; **3)** $\left(\frac{2}{3a}-\frac{a}{2a^2-2}\right)\cdot\frac{3a-3a^2}{2a+4}=\left(\frac{2}{3a}-\frac{a}{2(a^2-1)}\right)\cdot\frac{-3a(a-1)}{2(a+2)}=\frac{4a^2-4-3a^2}{6a(a-1)(a+1)}\cdot\frac{-3a(a-1)}{2(a+2)}=\frac{a^2-4}{2(a+1)}\cdot\frac{-1}{4(a+2)}=\frac{(a-2)(a+2)}{(a+1)}\cdot\frac{-1}{4(a+2)}=\frac{2-a}{4(a+1)}$; **4)** $\left(\frac{2}{a}-\frac{a+4}{a-2}\right)\cdot\frac{a^2}{a^3-8}-\frac{a}{(a-2)^2}=\frac{2a-4-a^2-4a}{a(a-2)}\cdot\frac{a^2}{(a-2)(a^2+2a+4)}=\frac{-a^2-2a-4}{a-2}\cdot\frac{a}{(a-2)(a^2+2a+4)}=\frac{-(a^2+2a+4)}{(a-2)}\cdot\frac{a}{(a-2)(a^2+2a+4)}=-\frac{a}{(a-2)^2}$; **5)** $\left(2a-\frac{10a-9}{2a-1}\right)\cdot\frac{1-2a}{9-4a^2}=\frac{4a^2-2a-10a+9}{2a-1}\cdot\frac{1-2a}{(3-2a)(3+2a)}=\frac{4a^2-12a+9}{2a-1}\cdot\frac{-(2a-1)}{(3-2a)(3+2a)}=\frac{(2a-3)^2}{(2a-3)(3+2a)}=\frac{2a-3}{2a+3}$; **6)** $\left(1-\frac{a-3}{2a+2}\right)\cdot\frac{a+1}{a^2+5a}=\frac{2a+2-a+3}{2a+2}\cdot\frac{a+1}{a(a+5)}=\frac{a+5}{2a+2}\cdot\frac{a+1}{a(a+5)}=\frac{a+1}{a(2a+2)}=\frac{a+1}{2a(a+1)}=\frac{1}{2a}$; **7)** $\left(1-\frac{3x}{x+1}\right)\cdot\frac{x^2-1}{1-4x^2}=\frac{x+1-3x}{x+1}\cdot\frac{(x-1)(x+1)}{(1-2x)(1+2x)}=1-2x\cdot\frac{x-1}{(1-2x)(1+2x)}=\frac{x-1}{2x+1}$;

9) $\left(\frac{2a^2-2}{a^2+ab}:\frac{1-a}{a+b}\right)\cdot\frac{1}{a^3+1}=\left(\frac{2(a^2-1)}{a(a+b)}\cdot\frac{a+b}{-(a-1)}\right)\cdot\frac{1}{(a+1)(a^2-a+1)}=\left(\frac{2(a+1)(a-1)}{a(a+b)}\cdot\frac{a+b}{-(a-1)}\right)\cdot\frac{1}{(a+1)(a^2-a+1)}=\frac{-2(a+1)}{a}\cdot\frac{1}{(a+1)(a^2-a+1)}=\frac{-2}{a(a^2-a+1)}$; **10)** $\left(\frac{4x^2-1}{x^2-16}\cdot\frac{x^2+4x}{(1-2x)^2}\right):\frac{8x^2+4x}{8x^3-1}\,\frac{4x^2+2x+1}{4(x-4)}=\left(\frac{(2x-1)(2x+1)}{(x-4)(x+4)}\cdot\frac{x(x+4)}{(1-2x)^2}\right)\cdot\frac{8x^3-1}{8x^2+4x}=\left(\frac{-(1-2x)(2x+1)}{(x-4)(x+4)}\cdot\frac{x}{(1-2x)^2}\right)\cdot\frac{(2x-1)(4x^2+2x+1)}{4x(2x+1)}=\frac{-x(2x+1)}{(x-4)(1-2x)}\cdot\frac{(2x-1)(4x^2+2x+1)}{4x(2x+1)}=\frac{(1-2x)(4x^2+2x+1)}{4(x-4)(1-2x)}=\frac{4x^2+2x+1}{4(x-4)}$.