

$$\frac{6x^2+18x^4}{12x^3} = \frac{18x^4+6x^2}{12x^3} = \frac{(18x^2+6)x^2}{12xx^2} = \frac{18x^2+6}{12x} = \frac{6(3x^2+1)}{12x} = \frac{3x^2+1}{2x}$$

$$\frac{25y^2-4}{25y+10} = \frac{25y^2-4}{5(5y+2)} = \frac{(5y-2)(5y+2)}{5(5y+2)} = \frac{5y-2}{5}$$

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

$$\begin{aligned} \frac{x}{x-4} - \frac{x+2}{x-2} &= \frac{x(x-2)}{(x-4)(x-2)} - \frac{(x+2)(x-4)}{(x-2)(x-4)} = \frac{x(x-2)-(x+2)(x-4)}{(x-4)(x-2)} = \frac{(x^2-2x)-(x^2-4x+2x-8)}{(x-4)(x-2)} = \\ &= \frac{(x^2-2x)-(x^2-2x-8)}{(x-4)(x-2)} = \frac{x^2-2x-x^2+2x+8}{(x-4)(x-2)} = \frac{8}{(x-4)(x-2)} \end{aligned}$$

$$\begin{aligned} 6y + \frac{12y}{6y-1} - 1 &= 6y-1 + \frac{12y}{6y-1} = (6y-1) + \frac{12y}{6y-1} = \frac{(6y-1)^2}{6y-1} + \frac{12y}{6y-1} = \frac{(6y-1)^2+12y}{6y-1} = \\ &= \frac{(36y^2-12y+1)+12y}{6y-1} = \frac{36y^2-12y+1+12y}{6y-1} = \frac{36y^2+1}{6y-1} \end{aligned}$$

$$\begin{aligned} \frac{a}{3a-9b} - \frac{3b^2}{a^2-3ab} &= \frac{a}{3(a-3b)} - \frac{3b^2}{a^2-3ab} = \frac{a}{3(a-3b)} - \frac{3b^2}{a(a-3b)} = \frac{a^2}{3(a-3b)a} - \frac{3^2b^2}{a(a-3b)3} = \\ &= \frac{a^2-3^2b^2}{3(a-3b)a} = \frac{a^2-9b^2}{3(a-3b)a} = \frac{(a+3b)(a-3b)}{3(a-3b)a} = \frac{a+3b}{3a} \end{aligned}$$

$$\begin{aligned} \frac{2a+1}{a^3-1} + \frac{a}{a^2+a+1} + \frac{1}{1-a} &= \frac{2a+1}{a^3-1} + \frac{a}{a^2+a+1} + \frac{1}{-a+1} = \frac{2a+1}{a^3-1} + \frac{a}{a^2+a+1} - \frac{1}{a-1} = \\ &= \frac{2a+1}{(a-1)(a^2+a+1)} + \frac{a}{a^2+a+1} - \frac{1}{a-1} = \frac{2a+1}{(a-1)(a^2+a+1)} + \frac{a(a-1)}{(a^2+a+1)(a-1)} - \frac{a^2+a+1}{(a-1)(a^2+a+1)} = \\ &= \frac{(2a+1)+a(a-1)-(a^2+a+1)}{(a-1)(a^2+a+1)} = \frac{(2a+1)+(a^2-a)-(a^2+a+1)}{(a-1)(a^2+a+1)} = \end{aligned}$$

$$=\frac{2a+1+a^2-a-a^2-a-1}{(a-1)(a^2+a+1)}=0$$

$$\frac{3n-18}{3n}=\frac{3(n-6)}{3n}=\frac{n-6}{n}$$