

$$\frac{4}{x^2} - \frac{3}{x} = \frac{4}{x^2} - \frac{3}{x} \cdot \frac{x}{x} = \frac{4}{x^2} - \frac{3x}{x^2} = \frac{4 - 3x}{x^2}$$

$$\frac{13}{xy^2} - \frac{6}{yz} = \frac{13}{xy^2} \cdot \frac{z}{z} - \frac{6}{yz} \cdot \frac{xy}{xy} = \frac{13z}{xy^2z} - \frac{6xy}{xy^2z} = \frac{13z - 6xy}{xy^2z}$$

$$\begin{aligned} \frac{2x}{(x+1)^2(4x+5)} + \frac{1}{x+1} &= \frac{2x}{(x+1)^2(4x+5)} + \frac{1}{x+1} \cdot \frac{(x+1)(4x+5)}{(x+1)(4x+5)} \\ &= \frac{2x + (x+1)(4x+5)}{(x+1)^2(4x+5)} \end{aligned}$$

$$\begin{aligned} \frac{1}{x^2(x+y)} + \frac{1}{x} + \frac{1}{(x+y)^3} &= \frac{1}{x^2(x+y)} \frac{(x+y)^2}{(x+y)^2} + \frac{1}{x} \cdot \frac{x(x+y)^3}{x(x+y)^3} \\ &\quad + \frac{1}{(x+y)^3} \cdot \frac{x^2}{x^2} \\ &= \frac{(x+y)^2}{x^2(x+y)^3} + \frac{x(x+y)^3}{x^2(x+y)^3} + \frac{x^2}{x^2(x+y)^3} \\ &= \frac{(x+y)^2 + x(x+y)^3 + x^2}{x^2(x+y)^3} \end{aligned}$$

$$\begin{aligned} \frac{2}{xy} + \frac{1}{x^3y^2} + \frac{2}{xy^4} &= \frac{2}{xy} \cdot \frac{x^2y^3}{x^2y^3} + \frac{1}{x^3y^2} \cdot \frac{y^2}{y^2} + \frac{2}{xy^4} \cdot \frac{x^2}{x^2} \\ &= \frac{2x^2y^3}{x^3y^4} + \frac{y^2}{x^3y^4} + \frac{2x^2}{x^3y^4} = \frac{2x^2y^3 + y^2 + 2x^2}{x^3y^4} \end{aligned}$$