

Effekthell :

$$1. \quad \frac{x^2 - x - 6}{4x + 8} \cdot \frac{x - 3}{x^2 - 6x + 9} = \frac{\cancel{(x+2)}\cancel{(x-3)}}{4\cancel{(x+2)}} \cdot \frac{\cancel{x-3}}{\cancel{(x-3)}^2} \\ = \frac{1}{4}$$

$$2. \quad \text{Factoriser : } 5x^2 + 12x + 4 \\ = 5(x+2)\left(x + \frac{2}{5}\right) \\ = (x+2)(5x+2)$$

$$\Delta = 64$$

$$x_{1,2} = \frac{-12 \pm 8}{10} = \begin{cases} -2 \\ -\frac{2}{5} \end{cases}$$

$$\frac{5x^2 + 12x + 4}{x^4 - 16} \div \frac{25x^2 + 20x + 4}{x^2 - 4} = \frac{(x+2)(5x+2)}{(x^2-4)(x^2+4)} \div \frac{(5x+2)^2}{x^2-4}$$

$$= \frac{\cancel{(x+2)}\cancel{(5x+2)}}{\cancel{(x^2-4)}(x^2+4)} \cdot \frac{\cancel{x^2-4}}{\cancel{(5x+2)}^2}$$

$$= \frac{x+2}{(x^2+4)(5x+2)}$$

$$3. \quad \frac{1}{x} - \frac{x}{\underbrace{x^2-1}_{(x-1)(x+1)}} + \frac{2x+1}{\underbrace{x^3-x}_{x(x-1)(x+1)}} = \frac{(x-1)(x+1)}{x(x-1)(x+1)} - \frac{x \cdot x}{x(x-1)(x+1)} + \frac{2x+1}{x(x-1)(x+1)}$$

ppmc : $x(x-1)(x+1)$

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

$$= \frac{\cancel{2x}}{\cancel{x(x-1)(x+1)}} = \frac{2}{(x-1)(x+1)}$$

$$4. \quad \frac{x}{\underbrace{x^2+6x+9}_{(x+3)^2}} - \frac{7}{x-3} = \frac{x(x-3)}{(x+3)^2(x-3)} - \frac{7(x+3)^2}{(x+3)^2(x-3)}$$

ppmc : $(x+3)^2(x-3)$

$$= \frac{x^2-3x - 7(x^2+6x+9)}{(x+3)^2(x-3)}$$

$$= \frac{x^2-3x-7x^2-42x-63}{(x+3)^2(x-3)}$$

$$= \frac{-6x^2-45x-63}{(x+3)^2(x-3)}$$

$$= \frac{-3(2x^2+15x+21)}{(x+3)^2(x-3)} \quad \Delta = 57$$