

$$1) \frac{2x+4}{x+y} \cdot \frac{x^2-y^2}{4x+8}$$

$$= \frac{(2x+4)(x-y)(x+y)}{(x+y)(4x+8)}$$

$$= \frac{2(x+2)(x-y)}{4(x+2)}$$

$$= \frac{2(x-y)}{2 \cdot 2}$$

$$= \frac{x-y}{2}$$

$$2) \frac{y^2 + 8y + 15}{y^2 - 25} \cdot \frac{4y - 20}{4x + 8}$$

$$y^2 - 25$$

$$4x + 8$$

$$= \frac{y^2 + 8y + 15}{y^2 - 25} = \frac{y + 3}{y - 5}$$

$$= \frac{4y - 20}{4x + 8} = \frac{y - 5}{x - 2}$$

$$= \frac{y + 3}{y - 5} \cdot \frac{y - 5}{x - 2}$$

$$= \frac{y + 3}{x - 2}$$

$$3) \frac{x^3 + 64}{x^2 - 16} \cdot \frac{6x - 24}{\cancel{x^3} + 4x^2 + 16x}$$

$$\frac{x^3 + 64}{x^2 - 16} \cdot \frac{x^2 - 4 + 16}{x - 4}$$

$$= \frac{(x^2 - 4x + 16) \cdot \cancel{6}(x - 4)}{(x - 4)(x^3 - 4x^2 + 16x)}$$

$$\frac{(x^2 - 4x + 16) \cdot 6}{x(x^2 - 4x + 16)}$$

$$= \frac{6}{x}$$

$$4) \frac{5x^2 + 13x - 6}{4 - 25x} \cdot \frac{10x - 4}{9 - x^2}$$

$$= \frac{(5x^2 + 13x - 6)(10x - 4)}{(4 - 25x)(9 - x^2)} = \frac{(5x - 2)(x + 3)(10x - 4)}{(4 - 25x)(3 + x)(3 - x)}$$

$$4 - 25x)(3 + x)(3 - x)$$

$$= \frac{(5x - 2)(10x - 4)}{(4 - 25x)(3 - x)}$$