

$$15. \frac{2ax+ay-4bx-2by}{ax-4a-2bx+8b}$$

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

$$25. \frac{24a^3b + 8a^2b^2}{36a^4 + 24a^3b + 4a^2b^2}$$

$$= \frac{8a^2b(3a+b)}{4a^2(9a^2 + 6ab + b^2)} = \frac{2b(3a+b)}{(3a+b)^2} = \frac{2b}{3a+b}$$

$$27. \frac{8n^3 + 1}{8n^3 - 4n^2 + 2n}$$

$$= \frac{(2n+1)(4n^2 - 2n + 1)}{2n(4n^2 - 2n + 1)} = \frac{2n+1}{2n}$$

$$39. \frac{3x^2 + 19x + 20}{6x^2 + 17x + 12}$$

$$= \frac{(3x)^2 + 19(3x) + 60}{(6x)^2 + 17(6x) + 72}$$

$$= \frac{[(3x+15)(3x+4)] \div 3}{[(6x+8)(6x+9)] \div 2 \cdot 3}$$

$$= \frac{(x+5)(3x+4)}{(3x+4)(2x+3)} = \frac{x+5}{2x+3}$$

... $4a^4 - 15a^2 - 4$

$$43. \frac{3m^2 + 5mn - 8n^2}{m^3 - n^3}$$

$$= \frac{(3m)^2 + 5n(3m) - 24n^2}{(m-n)(m^2 + mn + n^2)}$$

$$= \frac{[(3m+8n)(3m-3n)] \div 3}{(m-n)(m^2 + mn + n^2)}$$

$$= \frac{(3m+8n)(m-n)}{(m-n)(m^2 + mn + n^2)}$$

$$= \frac{3m+8n}{m^2 + mn + n^2}$$

$$40. \frac{4a^4 - 15a^2 - 4}{a^2 - 8a - 20}$$

$$= \frac{(4a^2)^2 - 15(4a^2) - 16}{(a-10)(a+2)}$$

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$$= \frac{[(4a^2 - 16)(4a^2 + 1)] \div 4}{(a-10)(a+2)}$$

$$= \frac{(a^2 - 4)(4a^2 + 1)}{(a-10)(a+2)}$$

$$= \frac{(a+2)(a-2)(4a^2 + 1)}{(a-10)(a+2)}$$

$$= \frac{(a-2)(4a^2 + 1)}{a-10}$$

$$\begin{aligned}
 44. \quad & \frac{15a^3b - 18a^2b}{20a^2b^2 - 24ab^2} \\
 & = \frac{3a^2b(5a - 6)}{4ab^2(5a - 6)} = \frac{3a}{4b}
 \end{aligned}$$

$$\begin{aligned}
 46. \quad & \frac{16a^2x - 25x}{12a^3 - 7a^2 - 10a} \\
 & = \frac{x(16a^2 - 25)}{a(12a^2 - 7a - 10)} \\
 & = \frac{x(4a + 5)(4a - 5)}{a[(12a)^2 - 7(12a) - 120]} \\
 & = \frac{x(4a + 5)(4a - 5)}{a[(12a - 15)(12a + 8)] \div 3 \cdot 4} \\
 & = \frac{x(4a + 5)(4a - 5)}{a(4a - 5)(3a + 2)} = \frac{x(4a + 5)}{a(3a + 2)}
 \end{aligned}$$

$$\begin{aligned}
 47. \quad & \frac{8x^4 - xy^3}{4x^4 - 4x^3y + x^2y^2} \\
 & = \frac{x(8x^3 - y^3)}{x^2(4x^2 - 4xy + y^2)} \\
 & = \frac{(2x - y)(4x^2 + 2xy + y^2)}{x(2x - y)^2} \\
 & = \frac{4x^2 + 2xy + y^2}{x(2x - y)}
 \end{aligned}$$

$$\begin{aligned}
 48. \quad & \frac{3an - 4a - 6bn + 8b}{6n^2 - 5n - 4} \\
 & = \frac{3n(a - 2b) - 4(a - 2b)}{(6n)^2 - 5(6n) - 24} \\
 & = \frac{(3n - 4)(a - 2b)}{[(6n - 8)(6n + 3)] \div 2 \cdot 3} \\
 & = \frac{(3n - 4)(a - 2b)}{(3n - 4)(2n + 1)} = \frac{a - 2b}{2n + 1}
 \end{aligned}$$

$$\begin{aligned}
 \mathbf{59.} \quad & \frac{6-x-x^2}{15+2x-x^2} \\
 &= \frac{-(x^2+x-6)}{-(x^2-2x-15)} \\
 &= \frac{(x+3)(x-2)}{(x-5)(x+3)} = \frac{x-2}{x-5}
 \end{aligned}$$

$$\begin{aligned}
 \mathbf{60.} \quad & \frac{3+2x-8x^2}{4+5x-6x^2} \\
 &= \frac{-(8x^2-2x-3)}{-(6x^2-5x-4)} \\
 &= \frac{(8x)^2 - 2(8x) - 24}{(6x)^2 - 5(6x) - 24} \\
 &= \frac{[(8x-6)(8x+4)] \div 2 \cdot 4}{[(6x-8)(6x+3)] \div 2 \cdot 3} \\
 &= \frac{(4x-3)(2x+1)}{(3x-4)(2x+1)} = \frac{4x-3}{3x-4}
 \end{aligned}$$

$$\begin{aligned}
 \mathbf{62.} \quad & \frac{x^3+x^2y-4b^2x-4b^2y}{4b^2-4bx+x^2} \\
 &= \frac{x^2(x+y)-4b^2(x+y)}{(2b-x)^2} \\
 &= \frac{(x^2-4b^2)(x+y)}{(x-2b)^2} \\
 &= \frac{(x+2b)(x-2b)(x+y)}{(x-2b)^2} \\
 &= \frac{(x+2b)(x+y)}{x-2b}
 \end{aligned}$$