

$$\textcircled{4} \frac{12}{7d} - \frac{3}{14d}$$

$$\frac{24}{14d} - \frac{3}{14d} = \frac{21}{14d} = \boxed{\frac{3}{2d}}$$

$$\textcircled{5} \frac{x+1}{x} - \frac{x-1}{x^2}$$

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

$$\textcircled{6} \frac{2x+1}{4x^2} - \frac{(x+3)^2}{6x}$$

$$\frac{6x+3}{12x^2} - \frac{2x^2+6x}{12x^2} = \boxed{\frac{-2x^2+3}{12x^2}}$$

$$\textcircled{7} \frac{7x}{3y^2} + \frac{4y}{6x^2} \cdot 3y^2$$

$$\frac{42x^3}{78x^2y^2} + \frac{52y^3}{78x^2y^2} = \boxed{\frac{42x^3+52y^3}{78x^2y^2}} \quad \frac{2(21x^3+26y^3)}{39x^2y^2}$$

$$\textcircled{8} \frac{x}{x-1} + \frac{1}{1-x}$$

$$\frac{x}{x-1} + \frac{1}{1-x} \quad \begin{array}{cc} x-1 & -x+1 \\ -x+1 & 1-x \end{array}$$

$$\frac{-x}{-x+1} + \frac{1}{1-x} \quad \frac{-x+1}{-x+1} = \boxed{1}$$

$$\textcircled{9} \quad \frac{4u^2}{3v^2} + \frac{12uv}{uv} + \frac{3}{4u^2} \cdot 3v^2$$

$$\frac{4u^2}{12u^2v^2} + \frac{12uv}{12u^2v^2} + \frac{9v^2}{12u^2v^2}$$

$$\frac{4u^2 + 12uv + 9v^2}{12u^2v^2}$$

$$\frac{u^2 + 12uv + 36v^2}{(u + \frac{6v}{4})(u + \frac{6v}{4})}$$

$$\boxed{\frac{(2u+3v)(2u+3v)}{12u^2v^2}}$$

$$\textcircled{10} \quad \frac{1}{x^2-x} + \frac{1}{x^2+x}$$

$$(x+1) \cdot \frac{1}{x(x-1)} + \frac{1}{x(x+1)} \cdot (x-1)$$

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

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

$$\textcircled{11} \quad \frac{1}{x^2-1} - \frac{1}{(x-1)^2}$$

$$(x-1) \cdot \frac{1}{(x+1)(x-1)} - \frac{1}{(x-1)(x-1)} \cdot (x+1)$$

$$\frac{x-1}{(x-1)(x+1)(x-1)} - \frac{x+1}{(x-1)(x-1)(x+1)}$$

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

$$\textcircled{12} \quad \frac{5}{x} - \frac{3 \cdot x}{x+5}$$

$$\frac{5x+25}{x(x+5)} - \frac{3x}{x(x+5)}$$

$$\boxed{\frac{2x+25}{x(x+5)}}$$

(y-1)

$$(13) \frac{y-1}{1} + \frac{1}{y-1}$$

$$\frac{y^2-2y+1}{y-1} + \frac{1}{y-1} \quad \boxed{\frac{y^2-2y+2}{y-1}}$$

(3m+1)

$$(14) \frac{3m+1}{1} - \frac{2m}{3m+1}$$

$$\frac{9m^2+6m+1}{3m+1} - \frac{2m}{3m+1} \quad \boxed{\frac{9m^2+4m+1}{3m+1}}$$

$$(15) \frac{3x}{x-y} + \frac{4x}{y-x}$$

$$\frac{-3x}{-x+y} + \frac{4x}{y-x} \quad \boxed{\frac{x}{y-x}}$$

$$(16) \frac{6}{4m^2-12mn+9n^2} + \frac{2}{2mn^2-3n^2}$$

$$n \cdot \frac{6}{(2m-3n)(2m-3n)} + \frac{2}{n(2m-3n)} \cdot (2m-3n)$$

$$\frac{6n}{n(2m-3n)(2m-3n)} + \frac{4m-6n}{n(2m-3n)(2m-3n)} \quad \boxed{\frac{4m}{n(2m-3n)(2m-3n)}}$$

$$(17) \frac{3}{x^2+5ax+6a^2} + \frac{2}{x^2-4a^2}$$

$$(x-2a) \frac{3}{(x+3a)(x+2a)} + \frac{2}{(x+2a)(x-2a)} \cdot (x+3a)$$

$$\frac{3x-6a}{(x+3a)(x-2a)(x+2a)} + \frac{2x+6a}{(x+3a)(x+2a)(x-2a)} \quad \boxed{\frac{5x}{(x+3a)(x+2a)(x-2a)}}$$

$$(18) \frac{x}{x^2+5x+6} - \frac{2}{x^2+4x+4}$$

$$(x+2) \frac{x}{(x+3)(x+2)} - \frac{2}{(x+2)(x+2)} \cdot (x+3)$$

$$\frac{x^2+2x}{(x+2)(x+3)(x+2)} - \frac{2x+6}{(x+2)(x+2)(x+3)} \quad \boxed{\frac{x^2-6}{(x+2)(x+3)(x+2)}}$$

$$(19) \frac{4}{a^2-4} - \frac{3}{(a^2+4a+4)}$$

$$(a+2) \frac{4}{(a+2)(a-2)} - \frac{3}{(a+2)(a+2)} \cdot (a-2)$$

$$\frac{4a+8}{(a+2)(a+2)(a-2)} - \frac{3a-6}{(a+2)(a+2)(a-2)} \quad \boxed{\frac{a+14}{(a+2)(a-2)(a+2)}}$$

$$\textcircled{20} \quad \frac{4}{3-3z^2} - \frac{2}{z^2+5z+4}$$

$$\frac{4}{3(1-z^2)} - \frac{2}{(z+4)(z+1)}$$

$$(z+4) \cdot \frac{4}{3(1+z)(1-z)} - \frac{2}{(z+4)(z+1)} \cdot 3(1-z)$$

$$\frac{4z+16}{3(z+4)(1+z)(1-z)} - \frac{6(1-z)}{3(1-z)(z+4)(z+1)}$$

$$\frac{10z+10}{3(z+4)(1+z)(1-z)} - \frac{10(z+1)}{3(z+4)(1+z)(1-z)} \quad \boxed{\frac{10}{3(z+4)(1-z)}}$$

$$\textcircled{21} \quad \frac{2c}{c^2-9} - \frac{1}{c^2+6c+9}$$

$$(c+3) \cdot \frac{2c}{(c+3)(c-3)} - \frac{1}{(c+3)(c+3)} (c-3)$$

$$\frac{2c^2+6c}{(c+3)(c+3)(c-3)} - \frac{c-3}{(c-3)(c+3)(c+3)}$$

$$\frac{2c^2+5c+3}{(c+3)(c+3)(c-3)} - \frac{c^2+5c+6}{(c+3)(c+2)} \quad \boxed{\frac{(2c+3)(c+1)}{(c+3)(c+3)(c-3)}}$$