

Perform the indicated operations and express your answer in simplest form.

1) $\frac{x-4}{2x} + \frac{x+4}{2x}$

2) $\frac{x}{3x^2+x-2} + \frac{1}{3x^2+x-2}$

3) $\frac{3t}{t-2} + \frac{2}{t-2} + 3t$

4) $\frac{24}{5x^2y} + \frac{14}{45xy^3}$

5) $\frac{3x}{2a^2b} + \frac{2y}{3ab^2} - \frac{3}{a^3b^2}$

6) $\frac{5}{y} + \frac{y}{y-3}$

7) $\frac{3}{x-2} + \frac{4}{x+5}$

8) $\frac{3x+y}{x+y} - \frac{2x+y}{x-y}$

9) $\frac{a}{a-b} + \frac{b}{b-a}$

10) $\frac{3x+1}{x-2} + \frac{2x+3}{2-x}$

$$11) \frac{2x+1}{x+3} + \frac{3x}{x-2} + 2x$$

$$12) \frac{2a+3}{a^2-2a-8} - \frac{a-5}{a-4}$$

$$13) \frac{x-2}{3x^2-12x} - \frac{3}{x^2-8x+16}$$

$$14) \frac{x+6}{x-3} + \frac{x}{x+2} - \frac{10}{x^2-x-6}$$

$$15) \frac{ax+ay}{a+b} + \frac{bx+by}{a+b}$$

$$16) \frac{3y+2}{y^2-2y+1} - \frac{7y-3}{y^2-1} + \frac{5}{y+1}$$

$$17) \frac{3}{x^2+2x-8} - \frac{5}{x^2-x-2}$$

$$18) \frac{2x+1}{2x^2+13x+15} - \frac{x-1}{2x^2-3x-9}$$

$$19) \frac{5}{x-y} + \frac{3}{y^2-x^2}$$

$$20) \frac{5x}{x^2-x-2} + \frac{4x+3}{x^3+x^2} - \frac{x-6}{x^3-2x^2}$$

Solutions: 1) 1 2) $\frac{1}{3x-2}$ 3) $\frac{3t^2-3t+2}{t-2}$ 4) $\frac{216y^2+14x}{45x^2y^3}$ 5) $\frac{9abx+4a^2y-18}{6a^3b^2}$ 6) $\frac{y^2+5y-15}{y(y-3)}$

7) $\frac{7x+7}{(x-2)(x+5)}$ 8) $\frac{x^2-5xy-2y^2}{(x+y)(x-y)}$ 9) 1 10) 1 11) $\frac{2x^3+7x^2-6x-2}{(x+3)(x-2)}$ 12) $\frac{-a^2+5a+13}{(a-4)(a+2)}$

13) $\frac{x^2-15x+8}{3x(x-4)^2}$ 14) $\frac{2x+1}{x-3}$ 15) $x+y$ 16) $\frac{y+4}{(y-1)^2}$ 17) $\frac{-2x-17}{(x+4)(x-2)(x+1)}$

18) $\frac{x^2-9x+2}{(2x+3)(x+5)(x-3)}$ 19) $\frac{5x+5y-3}{x^2-y^2}$ 20) $\frac{5x+3}{(x-2)(x+1)}$