

If an equation or inequality, solve. Otherwise, simplify.

$$1) \frac{x}{3} - \frac{x}{2} + \frac{x}{4} = 1$$

$$2) \frac{a}{6} - \frac{a}{9} > \frac{a}{3} - 5$$

$$3) \frac{x-3}{8} + \frac{x+4}{12} = x-4$$

$$4) \frac{y-2}{7} = \frac{y-7}{2}$$

$$5) \frac{x-3}{5} - \frac{x+2}{6} = 1$$

$$6) \frac{x-3}{5} - \frac{x+2}{6} \leq 1$$

$$7) \frac{7x+1}{4} - \frac{3x+1}{8} = \frac{x+2}{2}$$

$$8) \frac{2}{x} + \frac{1}{3} = \frac{5}{x}$$

$$9) \frac{2}{x+2} + \frac{3}{x} = \frac{5}{2x}$$

$$10) \frac{5}{z-1} - \frac{7}{z} = \frac{3}{2z-2}$$

$$11) \frac{3x}{x-4} - \frac{3x+1}{x+3} = \frac{12}{x-4}$$

$$12) \frac{9}{y^2+5y} + \frac{6}{5y} = \frac{3}{10y}$$

$$13) \frac{6}{x^2-3x} = \frac{12}{x^2-9x}$$

$$14) \frac{3x+2}{x^2-4x-5} + \frac{x-4}{x+1} - \frac{x}{x-5}$$

$$15) \frac{2y-3}{y+2} - \frac{5y+1}{y^2-4} = \frac{2y+3}{y-2}$$

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

$$17) \frac{3x}{x+5} = \frac{x}{x+3}$$

$$18) \frac{5}{a-2} - \frac{3}{2a-1} = \frac{4}{2a^2-5a+2}$$

$$19) \frac{3}{y-2} - \frac{7}{y} = 6$$

$$20) \frac{10}{2x^2-x-15} - \frac{5}{3x^2-4x-15} = \frac{3}{6x^2+25x+25}$$

Answers: 1) $x=12$ 2) $a < 18$ 3) $x=5$ 4) $y=9$ 5) $x=58$ 6) $x \leq 58$ 7) $x=1$ 8) $x=9$

9) $x = -\frac{2}{5}$ 10) $z=2$ 11) no solution (x cannot equal 4 since it would cause division by zero.)

12) $y=-15$ 13) $x=-3$ 14) $\frac{-7x+22}{(x-5)(x+1)}$ 15) $y = -\frac{1}{19}$ 16) no sol. 17) $x=-2, 0$ 18) $a = \frac{3}{7}$

19) $y = -1, \frac{7}{3}$ 20) $x=-2$