

① Multiply each

$$(5+2\sqrt{3})(4-\sqrt{6})$$

$$(2+\sqrt{3})^2$$

$$(2+\sqrt{3})(2-\sqrt{3})$$

② Solve $\frac{2}{5}x - \frac{3}{10} = \frac{1}{6}x + \frac{7}{15}$

$$(5+2\sqrt{3})(4-\sqrt{6}) \quad \sqrt{ab} = \sqrt{a}\sqrt{b}$$

$$20 - 5\sqrt{6} + 8\sqrt{3} - 2\sqrt{18}$$

$$- 2\sqrt{9}\sqrt{2}$$

$$20 - 5\sqrt{6} + 8\sqrt{3} - 6\sqrt{2}$$

$$(2+\sqrt{3})^2$$

$$(2+\sqrt{3})(2+\sqrt{3})$$

$$4 + 2\sqrt{3} + 2\sqrt{3} + \sqrt{9}$$

$$7 + 4\sqrt{3}$$

$$(2 + \sqrt{3})(2 - \sqrt{3}) \quad \text{conjugates}$$

$$4 - \cancel{2\sqrt{3}} + \cancel{2\sqrt{3}} - \sqrt{9}$$

$$4 - 3$$

$$1$$

$$\frac{2}{5}x - \frac{3}{10} = \frac{1}{6}x + \frac{7}{15}$$

$$\frac{3}{1} \cdot \frac{2}{1} \cdot \frac{5}{1} \left(\frac{2}{5}x - \frac{3}{10} \right) = \frac{3}{1} \cdot \frac{2}{1} \cdot \frac{5}{1} \left(\frac{1}{6}x + \frac{7}{15} \right)$$

Solve $\frac{1}{x} + \frac{2}{3x} = \frac{1}{3}$

$$\frac{x}{1} \left(\frac{1}{x} + \frac{2}{3x} \right) = \frac{x}{1} \left(\frac{1}{3} \right)$$

$$1 + \frac{2}{3} = \frac{x}{3}$$

$$\frac{3}{1} \left(1 + \frac{2}{3} \right) = \frac{3}{1} \cdot \frac{x}{3}$$

$$3 + 2 = x$$

$$5 = x$$

$$\frac{2}{x} + \frac{3}{2x} = \frac{7}{6}$$

$$\frac{6x}{1} \left(\frac{2}{x} + \frac{3}{2x} \right) = \frac{6x}{1} \left(\frac{7}{6} \right)$$

$$12 + 9 = 7x$$

$$21 = 7x$$

$$x = 3$$

$$\frac{3}{y^2-1} = \frac{6}{y^2-y}$$

$$\frac{3}{(y+1)(\underline{y-1})} = \frac{6}{y(\underline{y-1})}$$

$$\frac{\cancel{y(y+1)(y-1)}}{1} \cdot \frac{3}{(\cancel{y+1})(\cancel{y-1})} = \frac{6}{\cancel{y(y-1)}} \cdot \frac{(y+1)(y-1)\cancel{y}}{1}$$

$$3y = 6(y+1)$$

$$3y = 6x + 6$$

$$0 = 3y + 6 \quad \leftarrow$$

$$y = -2$$

$$\frac{5}{x^2-7x+12} = \frac{2}{x-3} + \frac{5}{x-4}$$

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

$$\frac{(x-3)(x-4)}{1} \cdot \frac{5}{(x-3)(x-4)} = \left(\frac{2}{x-3} - \frac{5}{x-4} \right) \frac{(x-3)(x-4)}{1}$$

$$5 = 2(x-4) - 5(x-3)$$

$$5 = 2x - 8 - 5x + 15$$

$$5 = -3x + 7$$

$$3x + 5 = 7$$

$$3x = 2$$

$$x = \frac{2}{3}$$

