

Algebra 3

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

$$(x-1) + 4(x-2) = x(x^2 - 3x + 2)$$

$$5x - 9 = x^3 - 3x^2 + 2x$$

$$x^3 - 3x^2 - 3x + 9 = 0$$

$$x^2(x-3) - 3(x-3) = 0$$

$$(x^2 - 3)(x-3) = 0$$

$$\left. \begin{array}{l} x = 3 \\ x = \sqrt{3} \\ x = -\sqrt{3} \end{array} \right\}$$

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

$$2(x-1) + 2(x-2) = x(x^2 - 3x + 2)$$

$$4x - 6 = x^3 - 3x^2 + 2x$$

$$x^3 - 3x^2 - 2x + 6 = 0$$

$$x^2(x-3) - 2(x-3) = 0$$

$$(x^2 - 2)(x-3) = 0$$

$$\left. \begin{array}{l} x = 3 \\ x = \sqrt{2} \\ x = -\sqrt{2} \end{array} \right\}$$