

$$6) \frac{24x}{2x^2-3x+4} = \frac{12x}{x^2+x+2} + 5$$

$$\frac{24}{2x-3+4/x} = \frac{12}{x+1+2/x} + 5$$

$$x + \frac{2}{x} = y$$

$$\frac{24}{2y-3} - \frac{12}{y+1} - 5 = 0$$

$$\frac{(24(y+1) - 12(2y-3) - 5(2y-3)(y+1))}{(2y-3)(y+1)} = 0$$

$$\frac{(24y+24-24y+36-10y^2+5y+15)}{(2y-3)(y+1)} = 0$$

$$\frac{(-10y^2+5y+75)}{(2y-3)(y+1)} = 0$$

$$10y^2-5y-75=0$$

$$2y^2-y-15=0$$

$$D=1+120=121$$

$$y_1 = \frac{1-11}{4} = -\frac{10}{4} = -\frac{5}{2}$$

$$y_2 = \frac{1+11}{4} = 3$$

$$x + \frac{2}{x} + \frac{5}{2} = 0$$

$$2x^2 + 5x + 4 = 0$$

$$D=25-32=-7$$

$$x + \frac{2}{x} - 3 = 0$$

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

$$x_1 = 2$$

$$x_2 = 1$$

Ответ: 2; 1

$$6.5) \frac{4x}{x^2+x+3} + \frac{5x}{x^2-5x+3} + \frac{3}{2} = 0$$

$$\frac{4}{x+1+3/x} + \frac{5}{x-5+3/x} + \frac{3}{2} = 0$$

$$x + \frac{3}{x} = z$$

$$\frac{4}{z+1} + \frac{5}{z-5} + \frac{3}{2} = 0$$

$$\frac{(4 \cdot 2(z-5) + 5 \cdot 2(z+1) + 3(z+1)(z-5))}{2(z-1)(z+5)}$$

$$\frac{(8z-40+10z+10+3z^2-15z+3z-15)}{2(z-1)(z+5)}$$

$$\frac{(3z^2+6z-45)}{2(z-1)(z+5)}$$

$$3z^2+6z-45=0$$

$$z_1 = -5$$

$$z_2 = 3$$

$$x^2+5x+3=0$$

$$D=25-12=13$$

$$x_1 = \frac{-5+\sqrt{13}}{2}$$

$$x_2 = \frac{-5-\sqrt{13}}{2}$$

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

$$D=9-12=-3$$

Ответ: $\frac{-5+\sqrt{13}}{2}; \frac{-5-\sqrt{13}}{2}$

