

$$5) \frac{16}{(x+6)(x-1)} - \frac{20}{(x+2)(x+3)} = 1$$

$$\frac{16}{(x^2+5x-6)} - \frac{20}{(x^2+5x+6)} - 1 = 0$$

$$t = x^2 + 5x$$

$$\frac{16}{(t-6)} - \frac{20}{(t+6)} - 1 = 0$$

$$\frac{16(t+6) - 20(t-6) - (t-6)(t+6)}{(t-6)(t+6)}$$

$$\frac{16t+96-20t+120-t^2+36}{(t-6)(t+6)}$$

$$-t^2 - 4t + 252 = 0$$

$$t^2 + 4t - 252 = 0$$

$$D = 4 + 252 = 256$$

$$x_1 = \frac{-2 + 16}{1} = 14$$

$$x_2 = -18$$

$$x^2 + 5x - 14 = 0$$

$$x_1 = -7$$

$$x_2 = 2$$

$$x^2 + 5x + 18 = 0$$

$$D = 25 - 72 = -47$$

Ответ: -7; 2

$$5.5) \frac{6}{(x+1)(x+2)} + \frac{8}{(x-1)(x+4)} = 1$$

$$\frac{6}{(x^2+3x+2)} + \frac{8}{(x^2+3x-4)} = 1$$

$$x^2 + 3x - 1 = z$$

$$\frac{6}{(z+3)} + \frac{8}{(z-3)} - 1 = 0$$

$$\frac{6(z-3) + 8(z+3) - z^2 + 9}{(z-3)(z+3)} = 0$$

$$\frac{6z - 18 + 8z + 24 - z^2 + 9}{(z-3)(z+3)} = 0$$

$$\frac{-z^2 + 14z + 15}{(z-3)(z+3)} = 0$$

$$z^2 - 14z - 15 = 0$$

$$z_1 = 15$$

$$z_2 = -1$$

$$x^2 + 3x - 16 = 0$$

$$D = 9 + 64 = 73$$

$$x_1 = \frac{-3 - \sqrt{73}}{2}$$

$$x_2 = \frac{-3 + \sqrt{73}}{2}$$

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

$$x(x+3) = 0$$

$$x = 0$$

$$x = -3$$

$$x \neq -1$$

$$x \neq -2$$

$$x \neq 1$$

$$x \neq -4$$

Ответ: $\frac{-3 - \sqrt{73}}{2}; \frac{-3 + \sqrt{73}}{2}; 0; -3$

