

Неполная замена аргументов

$$(x^2 - x + 1)^4 - 6x^2(x^2 - x + 1)^2 + 5x^4 = 0$$

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

$$v = x^2$$

$$u^2 - 6uv + 5v^2 = 0$$

$$u^2/v^2 - 6u/v + 5 = 0$$

$$u/v = t$$

$$t^2 - 6t + 5 = 0$$

$$t_1 = 5$$

$$t_2 = 1$$

$$u/v - 5 = 0$$

$$(x^2 - x + 1)^2/x^2 - 5 = 0$$

$$0u/v - 1 = 0$$

$$(x^2 - x + 1)^2/x^2 - 1 = 0$$

$$((x^2 - x + 1)/x - 1)((x^2 - x + 1)/x + 1) = 0$$

$$(x^2 - x + 1)/x - 1 = 0$$

$$x^2 - 2x + 1 = 0$$

$$x_1 = 1$$

$$x^2 - x + 1/x + 1 = 0$$

$$x^2 + 1 = 0$$

Нет корней

$$(x^2 - x + 1)^2/x^2 - 5 = 0$$

$$((x^2 - x + 1)/x - \sqrt{5})((x^2 - x + 1)/x + \sqrt{5}) = 0$$

$$(x^2 - x + 1)/x - \sqrt{5} = 0$$

$$x^2 - x + 1 - x\sqrt{5} = 0$$

$$x^2 - x(1 + \sqrt{5}) + 1 = 0$$

$$D = (1 + \sqrt{5})^2 - 4 = 1 + 2\sqrt{5} + 5 - 4 = 2 + 2\sqrt{5}$$

$$x_1 = (1 + \sqrt{5} - \sqrt{2 + 2\sqrt{5}})/2$$

$$x_2 = (1 + \sqrt{5} + \sqrt{2 + 2\sqrt{5}})/2$$

$$(x^2 - x + 1)/x + \sqrt{5} = 0$$

$$x^2 - x + 1 + x\sqrt{5} = 0$$

$$x^2 + x(-1 + \sqrt{5}) + 1 = 0$$

$$D = 1 - 2\sqrt{5} + 5 - 4 = 2 - 2\sqrt{5}$$

$$x_1 = (1 - \sqrt{5} - \sqrt{2 - 2\sqrt{5}})/2$$

$$x_2 = (1 - \sqrt{5} + \sqrt{2 - 2\sqrt{5}})/2$$

Ответ: $1; (1 + \sqrt{5} - \sqrt{2 + 2\sqrt{5}})/2; (1 + \sqrt{5} + \sqrt{2 + 2\sqrt{5}})/2;$
 $(1 - \sqrt{5} - \sqrt{2 - 2\sqrt{5}})/2; (1 - \sqrt{5} + \sqrt{2 - 2\sqrt{5}})/2$

