

Замена

$$1) (x^2 - 6x)^2 - 2(x - 3)^2 = 81$$

$$2) (x^2 - 2x)^2 - 3x^2 + 6x - 4 = 0$$

$$3) (2x^2 + 3x - 1)^2 - 10x^2 - 15x + 9 = 0$$

$$4) (x^2 - 3x)^2 - 14x^2 + 42x + 40 = 0$$

$$x^2 - 6x = x^2 - 6x + 9 - 9 = (x-3)^2 - 9$$

$$(x-3)^2 = x^2 - 6x + 9$$

$$((x-3)^2 - 9)^2 - 2(x-3)^2 = 81$$

$$\mathbf{(x-3)^2 = t}$$

$$(t-9)^2 - 2(t) = 81$$

$$t^2 - 18t + 81 - 2t = 81$$

$$t^2 - 20t = 0$$

$$t(t-20) = 0$$

0 or 0

$$t=0 \mid t=20$$

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

$$x=3$$

$$(x-3)^2 = 20$$

$$(x-3)^2 - 20 = 0$$

$$(x-3)^2 - (\sqrt{20})^2 = 0$$

$$(x-3-\sqrt{20})(x-3+\sqrt{20})=0$$

$$0$$

$$0$$

$$x-3-\sqrt{20}=0 \Rightarrow x=3+\sqrt{20}$$

$$x-3+\sqrt{20} \Rightarrow x=3-\sqrt{20}$$

ответ : $3+\sqrt{20}; 3-\sqrt{20}; 3$



$$3) (2x^2 + 3x - 1)^2 - 10x^2 - 15x + 9 = 0$$

$$(2x^2 + 3x - 1)^2 - 5(2x^2 + 3x) + 9 = 0$$

$$t = (2x^2 + 3x)$$

$$(t-1)^2 - 5t + 9 = 0$$

$$t^2 - 7t + 10 = 0$$

$$t_1 t_2 = 10$$

$$t_1 + t_2 = 7$$

$$t_1, t_2 = 2, 5$$

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

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

$$D = 9 + 16 = 25$$

$$x_1 = (-3 + 5)/4 = 2/4 = 1/2$$

$$x_2 = (-3 - 5)/4 = -2$$

$$(2x^2 + 3x) = 5$$

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

$$D = 9 + 40 = 49$$

$$x_1 = (-3 + 7)/10 = 4/10 = 2/5 \quad ; \quad x_2 = (-3 - 7)/10 = -1$$

answer : $1/2, -2, -1, 2/5$