

5. $2x^2 - 3x = 6$ / $x^2 - 3x = 3$ / $x^2 - 3x - 3 = 0$

1. $4x^4 - 3x^2 = 9 + 6$
 $x^2 = z \in \mathbb{R}$

$4z^2 - 3z = 9 + 6$
 $4z^2 - 3z - 9 + 6 = 0$

$z_1 = 16$ $z_2 = -15\frac{1}{4}$

$x^2 = 16 / \sqrt{\quad}$ $x^2 = -15\frac{1}{4}$

$x = \pm 4$ $x \geq 0$

4. $\begin{cases} x \cdot y + 2x = 6 \\ x \cdot y - y = 0 \end{cases}$

$2x + y = 6 \Rightarrow y = 6 - 2x$

$y = 6 - 2x$ / $x(6 - 2x) + 2x = 6$

$x(6 - 2x) + 2x = 6$

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

$-2x^2 + 8x - 6 = 0$

$x_1 = 3$
 $y(x=3) = 0$

$x_2 = 1$
 $y(x=1) = 4$

$(3, 0)$

$(1, 4)$

2. $(-x^2 + 3x)^2 + (-x^2 + 3x + 1) = 91$

$-x^2 + 3x = z \in \mathbb{R}$

$z^2 + z + 1 = 91$

$z^2 + z - 90 = 0$

$z_1 = 9$ $z_2 = -10$

$-x^2 + 3x = 9$ $-x^2 + 3x = -10$

$-x^2 + 3x - 9 = 0$ $-x^2 + 3x + 10 = 0$

$x_1 = 5$ $x_2 = -2$

3. $\sqrt{x+2} - \sqrt{x-3} = \sqrt{-6+x} \quad | ()^2$

$(\sqrt{x+2} - \sqrt{x-3})^2 = (\sqrt{-6+x})^2$

$x+2 - 2 \cdot \sqrt{x+2} \cdot \sqrt{x-3} + x-3 = -6+x$

$-2 \cdot \sqrt{x+2} \cdot \sqrt{x-3} = -(5+x) \quad | ()^2$

$4(x+2)(x-3) = 25 + 10x + x^2$

$4x^2 - 4x - 24 = 25 + 10x + x^2$

$3x^2 - 14x - 49 = 0$

$x_1 = 7$

$x_2 = -\frac{7}{3}$

$x \geq 0$