

2. ASTFEEN YHTÄLÖ

TUNTEMATTOMAN EKSPONENTTI $\propto 2$
 $5x^2$, $6a^2$, ...

YLFENSÄ MUOTOA

$$ax^2 + bx + c = 0$$

$$\begin{cases} 7x^2 - 6x - 5 = 0 \\ 3x^2 - 2x + 9 = 0 \end{cases}$$

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

PYSTYTÄÄN RATKAISEMAAN
KAUVALLA

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

MAOL

Ex. RATKAISE $x^2 - 2x + 1 = 0$

$$a = 1$$

$$b = -2$$

$$c = 1$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-(-2) \pm \sqrt{(-2)^2 - 4 \cdot 1 \cdot 1}}{2 \cdot 1}$$

$$= \frac{2 \pm \sqrt{4 - 4}}{2} = \frac{2 \pm \sqrt{0}}{2} = \frac{2 \pm 0}{2} \quad \left\{ \begin{array}{l} \frac{2+0}{2} = 1 \\ \frac{2-0}{2} = 1 \end{array} \right.$$

Ex. RATKAISE $x^2 - 5x + 6 = 0$

$$a = 1$$

$$b = -5$$

$$c = 6$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4 \cdot 1 \cdot 6}}{2 \cdot 1}$$

$$= \frac{5 \pm \sqrt{25 - 24}}{2} = \frac{5 \pm \sqrt{1}}{2} = \frac{5 \pm 1}{2} \left\{ \begin{array}{l} \rightarrow \frac{5+1}{2} = \frac{6}{2} = 3 \\ \rightarrow \frac{5-1}{2} = \frac{4}{2} = 2 \end{array} \right.$$

Lin. RATKAISE $5x^2 + 2x + 10 = 0$

$$a = 5$$

$$b = 2$$

$$c = 10$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-2 \pm \sqrt{2^2 - 4 \cdot 5 \cdot 10}}{2 \cdot 5} = \frac{-2 \pm \sqrt{4 - 200}}{10}$$

$$= \frac{-2 \pm \sqrt{-196}}{10} = \text{ERROR} \Rightarrow \underline{\text{EI RATKAISUA}}$$

NEULOJURTA
EI VOI OTTAA
NEG. LUVUSTA.

W. ZATKAISE $4x^2 - 16 = 0$

$$a = 4$$

$$b = 0$$

$$c = -16$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-0 \pm \sqrt{0^2 - 4 \cdot 4 \cdot (-16)}}{2 \cdot 4} = \frac{0 \pm \sqrt{256}}{8}$$

$$= \frac{0 \pm 16}{8}$$

$$\rightarrow \frac{0+16}{8} = \frac{16}{8} = 2$$

$$\rightarrow \frac{0-16}{8} = \frac{-16}{8} = -2$$