

1. Galileo and was published in 1638
2. Descartes united Algebra and Geometry. Published in 1637
3. Isaac Newton and Leibniz, Newton discovered it while Leibniz published first.

4. $x^3 + 6x - 7 = 0$

$x = (u+v)$

$u^3 + 3u^2v + 3uv^2 + v^3 + 6(u+v) - 7 = 0$

$u^3 + v^3 + (3uv+6)(u+v) - 7 = 0$

let $3uv+6 = 0$ so $uv = -\frac{6}{3} = -2$

so $u^3v^3 = -8$

$u^3 + v^3 = 7$

lemma $x^2 - 7x - 8 = 0$

$u^3 = 8 \quad v^3 = -1$

$u = 2, v = -1$

$x = 2 - 1 = 1$

Second root: $(-\frac{1}{2} + i\frac{\sqrt{3}}{2})^2 + (-\frac{1}{2} - i\frac{\sqrt{3}}{2}) - 1$

$= -1 + i\frac{2\sqrt{3}}{2} + \frac{1}{2} + i\frac{\sqrt{3}}{2} = -\frac{1}{2} + i\frac{3\sqrt{3}}{2}$

third root: $(-\frac{1}{2} - i\frac{\sqrt{3}}{2})^2 + (-\frac{1}{2} + i\frac{\sqrt{3}}{2}) - 1$

$= -\frac{1}{2} - i\frac{3\sqrt{3}}{2}$