

## Cubic formula

Find an explicit root of the cubic polynomial  $x^3 - 9x - 16 = 0$

Formula Root of  $x^3 + px + q = 0$  given by

$$\sqrt[3]{\sqrt{\left(\frac{q}{2}\right)^2 + \left(\frac{p}{3}\right)^3} + \frac{q}{2}} + \sqrt[3]{\sqrt{\left(\frac{q}{2}\right)^2 + \left(\frac{p}{3}\right)^3} - \frac{q}{2}}$$

Substitute  $p = -9$   $q = -16$

$$x = \sqrt[3]{\frac{\sqrt{64-27} + 8}{37}} + \sqrt[3]{\frac{\sqrt{64-27} + 8}{37}}$$