Consider $x^3 - 7x + 5 = 0$

This can be rearranged to

$$x^3 = 7x - 5$$

$$x = \sqrt[3]{7x - 5}$$

We can use the iterative formula

$$x_{n+1} = \sqrt[3]{7x_n - 5}$$

to find an approximate root of the equation

$$\left.\begin{aligned} 2^3 - 7(2) + 5 &= -1 \\ 3^3 - 7(3) + 5 &= 11 \end{aligned}\right\} \Rightarrow \text{a root lies between } x = 2 \text{ and } x = 3$$

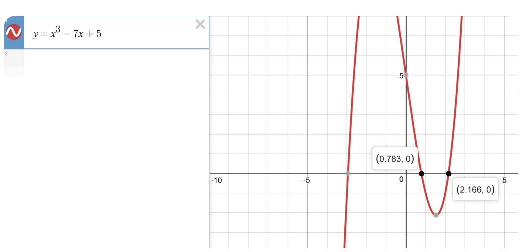
so let $x_1 = 3$

$$x_2 = \sqrt[3]{7 \times 3 - 5} = 2.520$$

$$x_3 = \sqrt[3]{7 \times 2.520 - 5} = 2.329$$

$$x_4 = \sqrt[3]{7 \times 2.329 - 5} = 2.244$$

$$x_5 = \sqrt[3]{7 \times 2.244 - 5} = 2.204$$



This iterative process is heading towards the root located at approximately

$x = 2.166$