

Θεμα 1^ο

φεβ 2019

$$f(x) = x^3 - 2 = 0$$

$$f'(x) = 3x^2$$

$$x_{n+1} = x_n - \frac{x_n^3 - 2}{3x_n^2}$$

$$x_0 = 2$$

$$x_1 = 2 - \frac{8-2}{3 \cdot 4} = 1.5$$

$$x_2 = 1.5 - \frac{1.5^3 - 2}{3 \cdot 1.5^2} = 1.5 - 0.204 = 1.296$$

$$x_3 = 1.296 - \frac{1.296^3 - 2}{1.296^2 \cdot 3} = 1.296 - 0.035$$

$$= 1.261$$

$$\frac{x_3 - x}{x} = 0.001 = 0.1\%$$