PERFUM Python Camp 2023

Computer exercise

1. Test quadratic formula $ax^2 + bx + c = 0$ when $a \neq 0$ is

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

   approximate x solution when b = 4, a = 1 and c =1. Write an if else block to determine if the value inside square root is positive, negative of zero.

2. Write a python code to test Fibonacci sequence below:

$$\bar{F}_n = \frac{1}{\sqrt{5}}\left[\left(\frac{1+\sqrt{5}}{2}\right)^n - \left(\frac{1-\sqrt{5}}{2}\right)^n\right]$$

   using command for with n = 100.

3. Plot the solution of time independent Schrodinger equation from infinite square well given a = 5. The equation is given below. Change the value of n and see if you get similar result from Griffith page 32 (also available from my lecture notes).

$$\psi_n = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi}{a} x\right)$$