****

**كلية العلوم**

**قسم الفيزياء والفلك**

**College of Sciences**

**Department of**

**Physics and Astronomy**

**Tutorial 8**

10

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| --- | --- | --- |
|  | **PHYS 400**  | **Academic year 1444 H**  |
| **Computational Physics** |  **Semester 442** |

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| --- | --- | --- |
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| **ID number** |  | **الرقم الجامعي** |

Consider the function ,

1. Find the exact root of the function :

………………………………………………………………………………

………………………………………………………………………………

1. Write a Python program allowing to find numerically the root of the function using **Bisection method**. Using initial guess points 0 and 100 with a tolerance of . The value ………………………………………………….

 *Save the program and name it: T8*

1. Fill the following table:

|  |  |  |
| --- | --- | --- |
| **tolerance**  | **iteration number** | **root**  |
| 0.1 |  |  |
| 10-3 |  |  |
| 10-6 |  |  |
| 10-9 |  |  |

 Compare the results with the exact value and conclude

………………………………………………………………………………………………………………………………………………………………………

1. Find the root of the function using the same conditions as Q2.
2. Conclude: …....………………………………………………………………………....
3. State the changes made to the program of Q2:

……………………………………………………………………………….

