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|  |  |

1. Seluruh mahasiswa tidak diperkenankan untuk:

*All students are not allowed to:*

* + - Berdiskusi dan/atau bekerja sama dengan mahasiswa lainnya

*Discuss and/or work together with other student participants*

* + - Melihat sebagian atau seluruh jawaban mahasiswa lain

*Seeing a part or the whole answer from another student*

* + - Membuka dan menyalin dari **BUKU** atau **CATATAN**, **VIDEO** dari pengajar (recording kelas, VBL, Youtube, dsb) dan **REFERENSI** lainnya

*Open and copy from any resources such as notes, videos (class recording, VBL, Youtube, etc) and other references*

* + - Membuka dan menyalin jawaban dari internet (google, stackoverflow, dsb)

*Open and copy answer from the internet (google, stackoverflow, etc)*

* + - Mengerjakan soal yang tidak sesuai dengan tema yang ada di soal,

*Working with another theme which is not in accordance with the existing theme in the matter of the case,*

* + - Melakukan tindakan kecurangan lainnya,

*Committing other dishonest actions,*

* + - Secara sengaja maupun tidak sengaja melakukan segala tindakan kelalaian yang menyebabkan hasil karyanya berhasil dicontek oleh orang lain / kelompok lain.

*Accidentally or intentionally conduct any failure action that cause the results of the project was copied by someone else / other groups.*

1. Jika mahasiswa terbukti melakukan tindakan seperti yang dijelaskan butir 1 di atas, maka **nilai mahasiswa** yang melakukan kecurangan (menyontek maupun dicontek) akan di – **NOL** – kan.

*If the student is proved to the actions described in point 1 above, the score of the student which committed dishonest acts (cheating or being cheated) will be “Zero”*

1. Perhatikan jadwal pengumpulan jawaban, segala jenis pengumpulan jawaban di luar jadwal tidak dilayani.

*Pay attention to the submission schedule, all kinds of submission outside the schedule will not be accepted*

1. Bila Anda tidak membaca peraturan ini, maka Anda dianggap telah membaca dan menyetujuinya

*If you have missed to read these regulations, so you are considered to have read and agreed on it*

1. Persentase penilaiaan untuk matakuliah ini adalah sebagai berikut:

*Marking percentage for this subject is described as follows:*

|  |
| --- |
| **Tugas Mandiri**  *Assignment* |
| 100% |

1. Software yang digunakan pada matakuliah ini adalah sebagai berikut:

*Software will be used in this subject are described as follows:*

|  |
| --- |
| **Software**  *Software* |
| Google Colaboratory  Jupyter Notebook |

## Ekstensi file yang harus disertakan dalam pengumpulan tugas mandiri untuk matakuliah ini adalah sebagai berikut:

*File extensions should be included in assignment collection for this subject are described as follows:*

|  |
| --- |
| **Tugas Mandiri**  *Assignment* |
| .ipynb |

## Soal

*Case*

Answer the questions below within **50 minutes.** Use Google Colaboratory and submit your answer in an **“ipynb”** file**.**

1. **Newton Raphson**

Find the root of the equation from the equation f(x) below by using **Newton Raphson** method:

f(x): 3x5 + 1000

* How many **iterations** are required to find the root of the equation?
* With first guess of the value is **100.**
* With **tolerate error** is **0.0xx** with **xx** are the **last digits** of your **Binusian NIM** (e.g., 25012345**31**, then the last digits of the Binusian NIM are **31**)
* With the number of the **max iterations** is **30**.
* **Print the result** of the **root** in **each** **iteration**. If the iteration is **over the max** iterations the **print error message.**

Table

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**Figure 1. Newton Raphson Result with Tolerate Error 0.01**

1. **Bisection**

Find the root of the equation from the equation f(x) below by using **Bisection** method:

f(x): 3x7 - x2 + 4

with the following **coordinates** **x1** and **x2** are:

* x1 = 4, x2 = 4
* x1 = -0.5, x2 = 4
* x1 = -5, x2 = 50
* x1 = -0.95, x2 = 1
* x1 = 2, x2 = -10

snippet code:

coordinates = [

    [4, 4],

    [-0.5, 4],

    [-5, 50],

    [-0.95, 1],

    [2, -10],

]

* Find the **root of each coordinate**
* **Print** the **result of the** **root** in each iteration of coordinates**.**
* For each iteration of coordinates, **validate** that the coordinate **x1 and x2** **must not be the same sign.**

Chart, text

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**Figure 2. Root of the Equation of each coordinate with Bisection**

1. **Integral Riemann**

Use the **Left Riemann** and **Right Riemann** Integral to find the **approximate** of  With **50 evenly spaced grid ponts** over the whole interval.