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Course > Module... > Graded ... > Graded ...

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Graded Quiz # 6

Graded Quiz # 6

1 point possible (graded, results hidden)

Please write below your BracU ID and Section Number. After submission, these may show WRONG answers. Please IGNORE these messages. Your score will be based on the questions below these two inputs:

=====

Your BracU ID#:

19101239

Your theory class section#

☐ 1

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End My Exam   0:06:19

- [ ] 4

- [ ] 5

- [x] 6

MCQs start from below. Answer the questions correctly:

=====

Q#1: Suppose for a function, $f(4.5) = 0$. For fixed-point iteration, if you derived $g(x)$ from $f(x)$, what should be the value for fixed-point x_* which is the root of $f(x)$?

- (•) 4.5

- ( ) 2.25

- ( ) 2

- ( ) 4

Q#2: Let $g(x) = cos(\pi x)$ derived from $f(x)$. If $x_* = 1.2$ for $f(x_*) = 0$ what is the convergence rate for fixed point iteration?

- ( ) Super Linear Convergence.

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End My Exam   0:06:19   👁

◉ Divergence.

Q#3: Let $g\left(x\right) = 5 + \frac{29}{x^2}$ derived from $f\left(x\right)$. If $x_* = 6$ for $f\left(x_*\right) = 0$ what is the convergence rate for fixed point iteration?

◉ Linear Convergence.

◯ Numerical Approximation is redundant.

◯ Divergence.

◯ Super Linear Convergence.

Q#4: Let $f\left(x\right) = 0$ at $x = -2, 2$. If you derive $g\left(x\right) = \frac{2}{5}\sqrt{5x + 6}$, then which root or roots will g (x) converge to?

◉ Only at x = 2.

◯ Only at x = - 2.

◯ Will not converge to any.

◯ Both roots

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○ Will not converge to any.

◉ Both roots

○ Only at x = 4.

○ Only at x = - 2.

Q#6: Let $f(x) = x^3 - 9x + 1$. What are the roots of the function? Note: x_* can be considered as roots when $f(x_*) < 10^{-4}$

○ 2.35345,1.77131,-1.77131.

○ 5.41241, 2.22112, -2.22112.

◉ -3.05408, 2.94282, 0.11126.

○ 3.23121, -3.23121, 7.21456.

Q#7: Which of the following $g(x)$ can be derived from $f(x) = x^3 - 9x + 1$?

○ $\frac{1}{9-x^2}$.

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End My Exam   0:06:19 👁

○ $\frac{x^3+1}{9}$.

Q#8: Let's say $g(x) = (9x - 1)^{\frac{1}{3}}$ can be derived from $f(x) = x^3 - 9x + 1$. How many roots will $g(x)$ converge to?.

○ 3.

● 2.

○ 1.

○ None.

Submit   You have used 1 of 1 attempt

ℹ Answer submitted.

Question #9 : Read the following question carefully.

Let's say $g(x) = (9x - 1)^{\frac{1}{3}}$ can be derived from $f(x) = x^3 - 9x +$ and it has a unique fixed point p_* on $[2, 3]$ which is also the root of $f(x)$.

a) **[1.5 Marks]** Let $p_0 = 2.7$ perform 3 fixed point iterations for p_n where $n = [0, 1, 2]$ up to **5 decimal place**.

b)**[0.5 Marks]** What is the error bound after 3 iterations?

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▼   Your Response due Aug 26, 2021 21:00 +06 (in 1 hour)   IN PROGRESS

Enter your response to the prompt. You can save your progress and return to complete your response at any time before the due date (Thursday, Aug 26, 2021 21:00 +06). **After you submit your response, you cannot edit it**.

The prompt for this section

> **Read the following instructions to submit your solution of the Problem Part (Question # 9) of Graded Quiz #6:**
>
> - Prepare a title page indicating (i) your name, (ii) BracU ID #, Grade Quiz # and (iv) your theory section #.
>
> - Rename your solution file in the format: ID_LastName_Section.pdf or ID_LastName_Section.jpg (As for example 12345678_Khan_4.pdf).
>
> - Prepare a single .pdf ot a single.jpg file containing the title page and the solution pages, arranged on order.and when finished upload your work/solution below, and write the file name in the Description tab and then click the Upload File button.
>
> - Finally click `Submit your Response and Move to the next step' to complete the submission.
>
> - Click `End My Exam' at the top.
>
> - If uploading fails, take a screen shot of your attempted uploading try. Email your file to our section teacher including the screen shot before the time runs out. No submission will be accepted without the screen shot and the email must be sent before the deadline.

Choose Files | No file chosen   Upload files   ✎

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❮ Previous

Next ❯

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