| $\mathop{\mathrm{MA}} olimits 123$ Fall 2023 Elementary Calculus | ${\mathop{\rm Exam}\limits_{_{09/21/23}} {f 1}}$ | Name: Grader | |
|--|---|---|---|
| | 1 1 | Student ID #: 9 | Sec: |
| Do not remark to answer page — you will turn in the entire exam. You have two hours and ones exam. No books a note may be used. You may use an ACT-approved calculator during the xam out NO calculated ith a support Algebra System (CAS), networking, or camera is permitted a poslut ono cell phonon and the maximum and an allowed. | | | |
| The such consists in short answ que i ns on the ball of this page For each multiple choice question For example, if (a) is correct, you | wer questions and \tilde{z} e, and record your n, you will need to 1 must shade (a) (b) (| 18 multiple choice questions. A answers to the multiple choice fill in the circle correspondit (\mathbf{c}) (\mathbf{d}) (\mathbf{e}) | A set of the short swer estions on the age. to the correct a set. |

It is your responsibility to make it CLEAR which response has been chosen. You will not get credit unless the correct answer has been clearly marked on this page.



GOOD LUCK!

Short Answer Questions

Each question is an opportunity to earn 5 points. Points are earned on the clarity and correctness of your work, not merely on having a correct answer somewhere.

1. Sketch the graph of a function y = f(x) which satisfies the following properties:

 $\lim_{x \to 1^{-}} f(x) = 4, \lim_{x \to 1^{+}} f(x) = 2, f(1) = 0, \lim_{x \to 5} f(x) = 3, \text{ and } f(x) \text{ is continuous for all } x \text{ except } x = 1.$



2. Let $g(x) = x^2 - 3x + 8$. Determine a value of c between x = 4 and x = 9 such that the average rate of change of g(x) from x = 4 to x = 9 is equal to the instantaneous rate of change at x = c.

$$C = \frac{13}{2}$$