

MATH 111
Test Prep 2
Winter 2023

Name _____

Student ID # _____

Section _____

HONOR STATEMENT

“I affirm that my work upholds the highest standards of honesty and academic integrity at the University of Washington, and that I have neither given nor received any unauthorized assistance on this exam.”

SIGNATURE: _____

- This test prep consists of one page of questions (on the back of this sheet).
- You will have 25 minutes from the moment the TAs tell you to start.
- You are allowed to use a non-graphing scientific calculator, a ruler, and one 8.5 by 11 inch sheet of handwritten notes (front and back). All other sources are forbidden.
- Turn your cell phone OFF and put it away for the duration of the test prep. You may not listen to headphones or earbuds during the test prep.
- **You must show your work.** Clearly show steps in using the vertex or quadratic formula and show steps in simplifying algebra. The correct answer with no supporting work will result in no credit.
- Unless otherwise indicated, when rounding is necessary, you may round your final answer to two digits after the decimal.
- **Do not write within 1 centimeter of the edge!** Your test prep will be scanned for grading.
- There are multiple versions of the test prep, you have signed an honor statement, and cheating is a hassle for everyone involved. If we find that you give an answer that is only appropriate for the other version of the test prep and there is no work to support your answer, then you will get a zero on the entire test prep and your work will be submitted to the academic misconduct board. **JUST DO NOT CHEAT.**

Again: **You must show your work.** Clearly show steps in using the vertex or quadratic formula and show steps in simplifying algebra. **The correct answer with no supporting work will result in no credit.**

GOOD LUCK!

1. (10 pts) You sell Things. The total revenue, $TR(x)$, and total cost, $TC(x)$, in dollars on an order of x Things are given by

$$TR(x) = 30x - 0.25x^2 \text{ dollars, and } TC(x) = 13x + 100 \text{ dollars.}$$

If rounding is necessary, round final answers to the nearest Thing or nearest cent.

- (a) Find the formulas for Variable Cost and Average Cost.

$$VC(x) = \underline{\hspace{10cm}}$$

$$AC(x) = \underline{\hspace{10cm}}$$

- (b) Find the largest interval on which Total Revenue is great than or equal to 800 dollars.

$$x = \underline{\hspace{2cm}} \text{ to } q = \underline{\hspace{2cm}} \text{ Things}$$

- (c) Find the maximum profit.

$$\underline{\hspace{10cm}} \text{ dollars}$$

- (d) Recall: $MR(x) = TR(x + 1) - TR(x)$. Find and completely simplify the formula for Marginal Revenue.

$$MR(x) = \underline{\hspace{10cm}}$$