

T3. 0. Write your: ###.First.Last.T3 _____

00. Write the email you use: _____

000. By my initials, I swear no one has helped me & I have helped no one or used any AI with this test other than a word processor or calculator. _____

0000. State the url of the web pages and textbook pages, not including notes, that you used on this assignment.

SHOW WORK TO RECEIVE ANY CREDIT. TITLE THE PAGE TO RECEIVE CREDIT FOR WORK ON THE PAGE. YOU MAY USE OTHER PAPER AND WRITE WORK ON THAT AND CIRCLE ANSWERS NEATLY ON THAT PAPER.



1. A farmer needs to fence a set of enclosures as shown (you may assume the three rectangles are of equal width). Suppose the exterior fence must be made of a material costing \$5 per foot, while the interior fence can be made from material costing \$3 per foot. If there is \$1500 available for the project, what dimensions yield the maximum area?

2. Write the equation of the line tangent to the graph of

$$y^3 + x^3 = 8xy + 50 \text{ at } (3, -1).$$

3. Find the derivative: $g(x) = \tan^{-1}(\sqrt{x})$