

Math 1552
Summer 2023
Quiz 2 Practice
May 25
Time limit: 20 Minutes

Name (Print): _____

Canvas email: _____

Teaching Assistant/Section: _____

GT ID:

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By signing here, you agree to abide by the **Georgia Tech Honor Code**: *I commit to uphold the ideals of honor and integrity by refusing to betray the trust bestowed upon me as a member of the Georgia Tech Community.*

Sign Your Name: _____

Please clearly organize your work, show all steps, simplify all answers, and BOX your answers.

1. (5 points) Compute $F'(x)$ using the fundamental theorem of calculus.

$$F(x) = \int_{x^2}^{2x} \frac{\sqrt{t}}{t^2 - 1} dt$$

2. (4 points) Use u -substitution to find the general anti-derivative of $f(x)$.

$$f(x) = \frac{1}{\sqrt{x}e^{-\sqrt{x}}} \sec(e^{\sqrt{x}} + 1) \tan(e^{\sqrt{x}} + 1)$$

3. (10 points) In this problem you will find the area bounded the curves $y = f(x) = x^3 + x^2$ and $y = g(x) = 2x^2 + 6x$ by following these steps:

(a) Find the x -values of the intersections points of the curves. *Separate values with commas.*

$$x = \boxed{}$$

(b) Determine the intervals where $f(x)$ or $g(x)$ is on top/bottom. *Separate intervals with \cup .*

f on top $\boxed{}$

g on top $\boxed{}$

(c) Set up integrals to find the area for each region between the curves. *Do not evaluate.*

(d) Finally, find the area by evaluating the integrals you set up from part (c) and adding the areas together.