

Math 1552
Spring 2019
Quiz 3 4:30
January 31, 2019
Time Limit: 15 Minutes

Name (Print): _____

Canvas email: _____

Teaching Assistant/Section: _____

GT ID:

--	--	--	--	--	--	--	--	--

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: _____

This quiz contains 2 pages (including this cover page) and 2 problems. Check to see if any pages are missing. Enter all requested information on the top of this page.

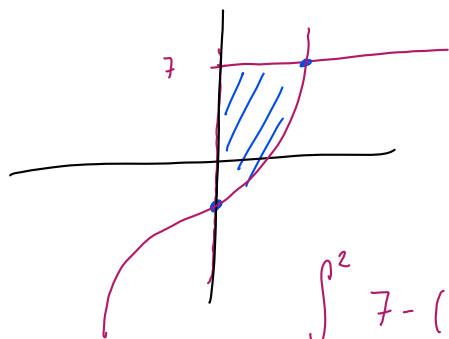
You may *not* use your books, notes, or any calculator on this quiz.

You are required to show your work on each problem on this quiz. The following rules apply:

- **If you use a “fundamental theorem” you must indicate this** and explain why the theorem may be applied.
- **Organize your work**, in a reasonably neat and coherent way, in the space provided. Work scattered all over the page without a clear ordering will receive very little credit.
- **Mysterious or unsupported answers will not receive full credit.** A correct answer, unsupported by calculations, explanation, or algebraic work will receive no credit; an incorrect answer supported by substantially correct calculations and explanations might still receive partial credit.
- Please circle or box in your final answer.

Problem	Points	Score
1	8	
2	12	
Total:	20	

1. (8 points) Find the area enclosed by the curves $y = x^3 - 1$, $x = 0$ and $y = 7$.



intersection at $x=0, 2$] +2

$$7 = x^3 - 1$$

$$8 = x^3$$

$$2 = x$$

$$\int_0^2 7 - (x^3 - 1) dx = \int_0^2 8 - x^3 dx = 8x - \frac{x^4}{4} \Big|_0^2$$

+2

$$= 8(2) - \frac{(2)^4}{4} - \left(8(0) - \frac{0^4}{4} \right) = 16 - 4 = \boxed{12}$$

+2

2. (12 points) Evaluate the following indefinite integral

$$\int \frac{\tan^{-1}(\frac{x}{4})}{16 + x^2} dx$$

$$u = \tan^{-1}(\frac{x}{4})$$

+2

$$du = \frac{1}{1 + (\frac{x}{4})^2} \cdot \frac{1}{4} dx = \frac{1}{4 + \frac{x^2}{4}} dx = \frac{4}{16 + x^2} dx$$

+2

$$= \int \frac{1}{4} u du = \frac{1}{4} \cdot \frac{u^2}{2} + C = \frac{1}{8} \tan^{-1}(\frac{x}{4}) + C$$

+2 +1

+1 correct sign/coeff.