

Math 1700 Summer 2013

Exam 1

Monday June 17 2013

No Work = No Credit

Name: _____ Student Number: _____

Signature: _____

Instructor: _____ Section: _____

Instructions: Answer all questions and show all of your work. The use of books, notes or calculators is not permitted.

Problem	Points	Student's Score
1	10	
2	10	
3	20	
4	40	
5	20	
Total:	100	

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1. (10 points) Find a formula for the inverse of the function

$$f(x) = \frac{4x + 3}{2x - 1}.$$

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2. (10 points) Find $(f^{-1})'(a)$, where $f(x) = 2x^2 + 5\cos(x) - 3\sin(x)$ and $a = 5$. You may assume that $f(x)$ is one to one.

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3. (a) (10 points) Differentiate the function $y = \frac{(x^3+1)^4 \sin^2(x)}{x^{1/3}}$.

(b) (10 points) Differentiate the function $y = \sin(\cos^{-1}(x))$.

...show all work...show all work...show all work...show all work...show all work...show all work...

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4. Evaluate the following integrals:

(a) (10 points) $\int \frac{1}{\sqrt{4-x^2}} dx.$

(b) (10 points) $\int \frac{\cos(x)}{1+\sin^2(x)} dx.$

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(c) (10 points) $\int_0^1 \frac{2^x}{2^x+1} dx.$

(d) (10 points) $\int_1^2 x \ln(x) dx.$

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5. Evaluate the following limits:

(a) (10 points) $\lim_{x \rightarrow \infty} \frac{(\ln(x))^2}{\sqrt{x}}.$

(b) (10 points) $\lim_{x \rightarrow \infty} \frac{x^3}{e^{2x}}.$

...show all work...show all work...show all work...show all work...show all work...show all work...