Math 1A (9:30am – 10:20am)
Quiz 1 Version U
Mon Apr 11, 2011

NAMES YOU ASKED TO BE CALLED IN CLASS:

_____ & _____

SCORE: ___ / 20 POINTS

NO CALCULATORS ALLOWED

SHOW PROPER ALGEBRAIC WORK (INCLUDING ALL IDENTITIES USED)
USE PROPER NOTATION & SIMPLIFY ALL ANSWERS WHERE REASONABLE

Find $\lim_{x\to 0^-} \coth x$. **Do NOT use a graph. Give algebraic or numerical reasoning, as shown in class.** SCORE: ___ / 2 POINTS

SEE 7:30 VERSION K

State the definition of "area under a function" given in class. SCORE: ___ / 2 POINTS
Use complete sentences and proper algebra & English as shown in class.

SEE 7:30 VERSIONS

Using the definition of "area under a function" given in class, write an algebraic expression for the area under $f(x) = \cos 3x$ over the interval $[5, 11]$. **Do NOT evaluate the expression. You do NOT need to draw a graph to explain your answer.** SCORE: ___ / 2 POINTS

$$\lim_{n\to\infty} \sum_{i=1}^{n} \cos 3\left(5 + \frac{6i}{n}\right) \cdot \frac{6}{n}$$

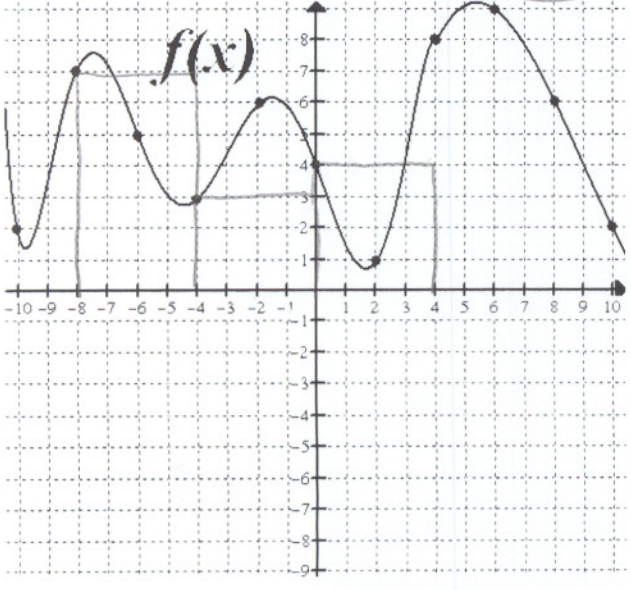
$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$

OR $\sum_{i=0}^{n-1}$

MULTIPLE CHOICE: CIRCLE THE CORRECT ANSWER SCORE: ___ / 2 POINTS

For the function f on the interval $[-8, 4]$, A_3 using the left hand sum (known as L_3 in your textbook) equals

[a] 48 [b] 52 [c] 56 [d] 60 [e] 64 [f] none of the above



$\Delta x = \frac{4 - -8}{3} = 4$

$4(7 + 3 + 4) = 56$

Find $\frac{d}{dx}\sinh^{-1}(\operatorname{csch} x)$.

SCORE: ___ / 3 POINTS

SEE 7:30 VERSION R

If $\sinh x = -6$, find $\cosh 2x$, **using identities**.

Do NOT use the logarithmic formula for any inverse hyperbolic functions.

SCORE: ___ / 3 POINTS

$\cosh 2x = 2\sinh^2 x + 1$ 2

$= 2(-6)^2 + 1$

$= 73$ 1

OR

OR

$\cosh^2 x - \sinh^2 x = 1$ $\frac{1}{2}$

$\cosh^2 x - (-6)^2 = 1$

$\cosh^2 x = 37$ $\frac{1}{2}$ $\Rightarrow \cosh x = \sqrt{37}$

$\cosh 2x = \cosh^2 x + \sinh^2 x = 73$ 1

OR $= 2\cosh^2 x - 1 = 73$

1 OR

Prove the logarithmic formula for $\tanh^{-1} x$.

SCORE: ___ / 3 POINTS

SEE 7:30 VERSIONS

Prove the derivative of $\tanh^{-1} x$. **Do NOT use the logarithmic formula for** $\tanh^{-1} x$.

SCORE: ___ / 3 POINTS

SEE 7:30 VERSION R