

SOME CALCULUS SONGS

Lyrics by Denise Fuji McCleary

For all my Calculus songs go to:

<http://homework.zendog.org/songsfall2004.html>

<http://homework.zendog.org/captainofusub.pdf>

<http://homework.zendog.org/DiffEQsong.pdf>

THE DERIVATIVE SONG [Sung to the tune of Happy Birthday to You]

One prime two plus two prime one

One prime two plus two prime one

I just did the product rule,

That means I am Cool!

The quotient rule I need to know

Low d high less high d low

Draw a line then there below

Put the square of the low.

CHAIN RULE SONG [Sung to the tune of America the Beautiful]

The Chain Rule is not hard to do

We need to sub a "u"

The "u" is just the inside of

Composite "f of u"

We'll multiply f prime of u

Times du/dx , Hence,

dx of f of g of x is

Found with diligence!

How about a song from *Calculus the Musical!*

“Differentiabil”

(In the style of : They Might Be Giants - Istanbul(Not Constantinople))

$f(x+h) - f(x)$ all over h as h drops to zero
is the formula to find the derivative
to otherwise state the instantaneous rate.
 $f(x+h) - f(x)$ all over h as h drops to zero
is the formula to find the derivative
to find the slope at one point.

Infinitesimals dy over dx ,
Why he wrote it out that way,
Leibniz just liked it better that way,

So,
 $f(x+h) - f(x)$ all over h as h drops to zero
is the formula to find the derivative,
Now Hooke will be coming with a rope...
Newton found the limit of the slope.

Infinitesimals dy over dx .
Why he wrote out that way ...
Leibniz just liked it better that way!

$f(x+h) - f(x)$ all over h as h drops to zero
is the formula to find the derivative,
Now Hooke will be coming with a rope...
Newton found the limit of the slope.

For more about *Calculus the Musical!* including how to purchase the cd go to:
<http://calculusthemusical.com/calculus-the-musical/>

Riemann Sums

(sung to the tune of Jingle Bells)

Riemann Sums, Riemann Sums

Counting Areas

Of rectangles whose widths get small

We need to count them all

Riemann Sums, Riemann Sums

Counting Areas

Of rectangles whose widths get small

We need to count them all.

We learn to integrate

It's really lots of fun.

It's easier to find

Than those old Riemann Sums

We learn to sub a u

When things get sort of hard

But most of all we tabulate

When we get sick of parts.

[repeat the refrain]

Derivatives, Derivatives

(sung to the tune of O Christmas Tree)

Derivatives, derivatives

They help us find the rate of change.

Derivatives, derivatives

They're not that hard, they're in our range.

The product rule is so much fun

It's one prime two plus two prime one

Derivatives, derivatives

They help us find the rate of change.

Calculus Class

(sung to the tune of Silent Night)

Calculus class, calculus class

Teacher's cruel

Hate the Chain Rule

Find the prime of f of g

It's supposed to fill us with glee

Times dx of the outside

By dx of the inside.

The Function Song [sung to The Dreidel Song]

I have a little function
Whose behavior I must find
I know that I can do this
I have to find f prime

Chorus

Oh, functions, functions, functions
Where do they take a rest?
Oh, functions, functions, functions
My teacher is a pest!*

* *alternate line* My teacher is the best!

Where are those pesky cv 's?
Remember "undefined"!
Where are all the extrema?
How 'bout a number line!

Chorus

Oh, functions, functions, functions
Where do they take a rest?
Oh, functions, functions, functions
My teacher is a pest!*

* *alternate line* My teacher is the best!

How about another song from *Calculus the Musical!*

Maxima and minima

MADE UP
WORDS
↙

For maxima and minima just take “derivitima”
Happiness, now just assess the zero, zero, zero, zero!
Don’t forget you must inspect the endpoints as they are suspect!

Find the values of our function, look for high and low!

Local maxima are on an interval,

Local minima are on an interval,

Global maxima aren’t on an interval

Global minima aren’t on an interval! – terval! –terval! –
terval!

And

Saddle, Peak and Trough and saddle, peak, and trough
and saddle, peak, and trough and peak and trough and
peak and trough and saddle, peak and trough and saddle,
peak and trough and saddle, saddle, peak and trough and
peak and trough.

Now maxima and minima are also called the extremum,
Sometimes they can be absolute as long as there’s no
greater, lesser,

Relative implies a region that the extrema is in.

Don’t confuse a saddle point! [3 times]

With an extrema!

Saddle, Peak and Trough and saddle, peak, and trough and saddle, peak, and trough and peak and trough and saddle, peak and trough and saddle, peak and trough and saddle, saddle, peak and trough and trough.

