

Oceania

MathsJam Jam

Songbook

2019

Contents

| | | |
|--|----------------------------------|-----------|
| George Boole | Hey Jude | 2 |
| Mathematical Pi | American Pie | 3 |
| Write in C | Let it Be | 5 |
| For Cosine, Tan and Sine | Auld Lang Syne | 6 |
| I want to make e | I Want to Break Free | 7 |
| What shall we do with the function, Taylor? | The Drunken Sailor | 8 |
| Millennium Prize Song | Where Have All the Flowers Gone? | 9 |
| Sin on Cos Can Turn into Tan | Santa Claus is Coming to Town | 10 |

George Boole

Lyrics by Tom Button 2018

To the tune of Hey Jude

George Boole, don't be so sad
You took an idea and made it better:
A statement that is either true or false
Can be represented as a letter

George Boole, don't be afraid
You are remembered for your al-ge-bra
You thought everything was just black or white
Where they saw a horse you saw a zebra

And anytime you feel the pain,
George Boole, refrain
You carry the world upon your numbers
You made a most fantastic tool
George Boole, it's cool
For making computers unencumbered
Nah, nah nah, nah nah, nah nah, nah nah

George Boole, don't be down
You're regarded as a pacesetter
When switching circuits were first invented
There was no other theory better

So using one or using nought,
George Boole, you taught
Us operations like conjunctions,
Though electronics came after you,
George Boole, you knew
We had what we needed for its construction
Nah, nah nah, nah nah, nah nah, nah nah yeah

George Boole, don't be afraid
You are remembered for your al-ge-bra
You thought that everything was just black or white
Where they saw a horse you saw a zebra, zebra, zebra, zebra, zebra, yeah!
Nah, nah nah, nah nah, nah, nah, nah nah, George Boole (repeat 8 times!)

Mathematical Pi

Lyrics by Antoni Chan and Ken Ferrier

To the tune of American Pie

youtu.be/_BwKZEp2K_0

A long, long time ago,
Long before the Super Bowl and things like lemonade,
The Hellenic Republic was full of smarts,
And a question resting on the Grecian hearts was;
What is the circumference of a circle?",

But they were set on rational numbers,
And it ranks among their biggest blunders,
They worked on it for years,
And confirmed one of their biggest fears,
I can't be certain if they cried when irrationality was realised,
But something deep within them died,
The day, they discovered, Pi.

They were thinking;

Chorus:

*Pi, pi, mathematical pi,
3.14 15 92,
65 35 89 7,
932384 62,
6433832 7*

(not rounded).

Well this kind of pi is different than most,
It hasn't got berries, ain't spread on toast,
And that's how it's always been,
We keep extending its decimal places,
Pushing our computers through their paces,
But we'll never reach the end,
So why the fascination with,
A number whose end is just a myth?

Whence the adulation,
For mental masturbation,
It might have something to do with the stars,

To calculate distances from afar,
But that's just a guess 'bout the way things are,
Regarding the precision of pi,

I am pondering;

Chorus

Now I feel that I should mention,
Pi is applicable in any dimension,
At least as far as I know,
If there were no pi we'd be missing things,
Like marbles and mugs and balls of string,
And sports, such as soccer and curling,

The orbs in their celestial paths,
Navigate along elliptical graphs,
Ellipses have pi in them too,
Just one side of them has grew,
You can see pi in most everything,
It's in Cornell's Electron Storage Ring,
And also in slinkies and other springs,
And that's why it's important to know pi,

You should memorize,

Chorus

Once one night I had a dream,
That pi was gone and I had to scream,
Cause all pi things had disappeared.
Can you imagine a world like that?
Circles aren't round and spheres are flat,
It's the culmination of everything we've feared,

'Twas a nightmare of epic proportions,
One that gave me brain contortions,
Oh wait! I mean contusions,
They put me in some institutions,
But then I escaped and now I'm free!

To sing of the virtue of pi,

Chorus

Write in C

Lyrics by Kriston J. Rehberg

To the tune of Let it Be

youtu.be/1S1flSh-pag

When I find my code in tons of trouble,
Friends and colleagues come to me,
Speaking words of wisdom:
"Write in C."

As the deadline fast approaches,
And bugs are all that I can see,
Somewhere, someone whispers:
"Write in C."

Write in C, write in C,
Write in C, oh, write in C.
LISP is dead and buried,
Write in C.

I used to write a lot of FORTRAN,
For science it worked flawlessly.
Try using it for graphics!
Write in C.

If you've just spent nearly 30 hours
Debugging some assembly,
Soon you will be glad to
Write in C.

Write in C, write in C,
Write in C, yeah, write in C.
Only wimps use BASIC.
Write in C.

Write in C, write in C,
Write in C, oh, write in C.
Pascal won't quite cut it.
Write in C.

For Cosine, Tan and Sine

Lyrics by Alison Kiddle 2018

To the tune of Auld Lang Syne

Should SOHCAHTOA be forgot
When trig is brought to mind?
The unit circle is your friend
For cosine, tan and sine.

Chorus:

*For cosine, tan and sine, my dear,
For cosine, tan and sine,
The unit circle helps you out
With cosine, tan and sine.*

And surely x gives you the cos
And y gives you the sine,
The tangent is the gradient
Of th'hypotenuse incline.

Chorus

And there's a hand my trusty friend
To work out the length of lines
In each right-angled triangle
With cosine, tan and sine.

Chorus

I want to make e

Lyrics by Gordon Hayes 2018

To the tune of I want to Break Free

I want to make e
I want to make e
I want to make e from i pi
You should be satisfied I don't need to
But I want to make e
God knows, God knows I want to make e

I'm failing to prove
I'm failing to prove for the first time
But this pi I know it ain't real
I'm failing to prove, yeah
God knows, God knows I'm failing to prove

It's strange but it's true
One over e's the solution to the hat check probl'm too
But I have to be sure
When I walk out that door
Oh how my hat b'longs to me, baby
Oh how my hat b'longs to me
Oh how I want to make e

But life still goes on
I can't get used to living without, living without
Living without Euler, who died
I don't want to live alone, hey
God knows, got to make e on my own

So Bernoulli, can't you see?
I've got to make e
I've got to make e
I want to make e, yeah
I want, I want, I want, I want to make e

What shall we do with the function, Taylor?

Lyrics by Martin Harris 2018

To the tune of The Drunken Sailor

What shall we do with the function, Taylor?
What shall we do with the function, Taylor?
What shall we do with the function, Taylor?
Early in the MathsJam

Refrain:

Maintain derivatives
Maintain derivatives
Maintain derivatives
Early in the MathsJam

Sum for n from zero to infinity
Sum for n from zero to infinity
Sum for n from zero to infinity
Early in the MathsJam

Refrain

Differentiate to the nth degree
Differentiate to the nth degree
Differentiate to the nth degree
Early in the MathsJam

Refrain

Multiply by (x minus a) to the n
Multiply by (x minus a) to the n
Multiply by (x minus a) to the n
Early in the MathsJam

Refrain

Finally divide by n-factorial
Finally divide by n-factorial
Finally divide by n-factorial
Early in the MathsJam

Refrain

Millennium Prize Song

Lyrics by Derek Couzens 2017

To the tune of **Where have all the flowers gone?**

What line are the zeros on?
Of the Zeta Function
What line are the zeros on?
This no one knows
What line are the zeros on?
Riemann predicted every one.
When will we ever learn? When will we ever learn?

Is $P = NP$ wrong?
This is quite a tricky one
Is $P = NP$ wrong?
This no one knows
Is $P = NP$ wrong?
Solve this for a million
And maybe a Nobel gong ... maybe a Nobel gong.

How does all the fluid flow?
Smooth or Turbulent there it goes
How does all the fluid flow?
This no one knows
Solve the equations of Navier-Stokes
And publish it to all math folks
It'll earn you lots of dough. It'll earn you lots of dough.

Now we come to Poincaré.
For this we can shout Hooray
Now we come to Poincaré
Now this we know
Now we come to Poincaré
Perlmann put this one away
But he didn't want the prize. He didn't want the prize.

Three more problems we'll forget
From the famed Millennium septet
This ballad is too short to tell
And they don't scan too well
But if you want each one to know
Ask Ross and he will show
It all in 5 minutes or less ... it in 5 minutes or less

Sin on Cos Can Turn into Tan

Lyrics by Colin Beveridge 2016

To the tune of Santa Claus is Coming to Town

You'd better swot up, it's hard to get by
Unless you know the graphs from 0 to 2π ,
Sin on cos can turn into tan.

You're squaring sin x, squaring the cos,
You're going to get one whatever x was,
Sin on cos can turn into tan.

You even know the hard ones,
you barely have to check
You know that $1 + \tan^2 x$
becomes the square of sec!

You've drawn it all out, it's easy to see,
Cos pi by six is half of root 3
Sin on cos can turn into tan.

You've picked up all the formulas,
you've read them through and through
The area of a sector
is $r^2 \theta$ over two

You used to hate radians, now it's your strength
Since you learned that $r \theta$ gives the arc-length
Sin on cos can turn into tan.

Your teacher's in a Santa hat,
you swear that you don't know her
Because there's really no excuse
for ho-ho-hoh-cah-toa.

You'd better swot up, it's hard to get by
Unless you know the graphs from 0 to 2π ,
Sin on cos can turn into tan.
Sin on cos can turn into tan.

