

$\sqrt{1 + \tan^2 C}$

A Short Musical

Book, Music, and Lyrics by D. Q. Pham

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Cast of Characters

CURVICE:

Mathematician.

Place

Classroom

Time

Evening

Musical Numbers

TRIANGULATE

COMPLEX PLANE

SIMPLIFY

Curvice

Setting: A classroom contains a board. The piano and drum set are stationed. Stacks of papers on music stands contain a list of trigonometric identities and $\sqrt{1 + \tan^2 C}$.

At Rise: The lights fade in. PIANIST and DRUMMER position themselves with their instruments.

(Song: "TRIANGULATE")

(CURVICE belatedly enters.)

CURVICE

Triangulate. I know. I am not in the best shape.

(Shifting attention towards AUDIENCE.)

Welcome to trigonometry. I will be your instructor. Professor Curvice.

(Heading to the board.)

Compared to this quadrilateral here, our class is one-sided-*less*.

(Picking up a writing instrument.)

Trigonometry one.

(Drawing a line.)

O.

(Skipping a line.)

One.

(Drawing another line to form a two-sided triangle.)

Let's call this course number one, one, one from now on.

(Drawing another line to complete the triangle.)

(GUITARIST, lugging their guitar, joins PIANIST and DRUMMER.)

It feels like one minute. But three weeks have already passed. And so far, you all are *passing*. Isn't that what mathematics supposed to feel like?

(Dropping the writing instrument.)

CURVICE (Cont.)

So, it is an appropriate time for the *pop* exam.

(PIANIST, DRUMMER, and GUITARIST pass around the exams to AUDIENCE MEMBERS. After handing out all the papers, they return to their stations.)

You have one minute. Begin.

(Song: “COMPLEX PLANE”)

(CURVICE scans the room.)

You all didn’t bring a writing utensil? What do you think evenings are for? Righting your wrongs?

(Heading to the dropped writing instrument.)

At least, write some wrong answers.

(Kicking the writing instrument into the open.)

Fight for it.

(Disappointedly scanning the room.)

What is wrong with you all?

(Taking a paper from an AUDIENCE MEMBER.)

Just simplify square root of one plus tangent squared C. I know it does not have the pizazz of three-dimensional geometry.

(Evaluating and flipping around the paper.)

You all are two-dimensional. You... TRIGONOME—

(Feeling the weight of emotions.)

It is me who is two-dimensional... In fact, I am bent out of shape. I am going on a tangent.

(Wiping away the tears with the paper.)

There is nothing *integral* that can piece me together.

(Looking deeper into the paper.)

Except our fundamental identities.

(Returning the paper to AUDIENCE MEMBER.)

(Song: "SIMPLIFY")

CURVICE (Cont.)

LOOK DEEP WITHIN OURSELVES.

(Retrieving the writing instrument.)

ONE.

(Heading to the board.)

SINE. COS.

(Writing " $1 = \cos^2 C + \sin^2 C$ ".)

COS SQUARED C PLUS SINE
SQUARED C.

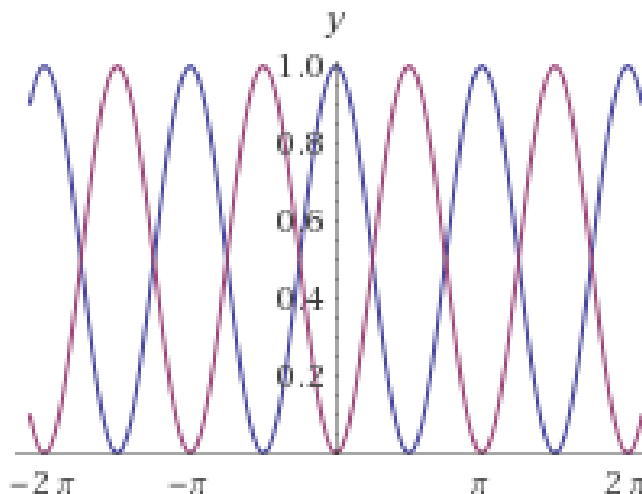
(Dropping the writing instrument, leaving a mess on their
jacket.)

YOU ALL SINE'D...

(Removing jacket.)

UP FOR THIS.

(Drawing a sine-squared wave and a cosine-squared wave.)



COSINE'D.

(Scanning the room.)

CURVICE (Cont.)

THERE'RE THREE POINTS IN
TRIGO. EVER, THERE ARE
INFINITE SIDES. KNOW YOUR
UNIT CIRCLES?

(Disappointedly return to the board.)

SECANT...

(Writing " $\sec C = \frac{1}{\cos C}$ ". They carefully set down the
writing instrument. They turn to AUDIENCE.)

PI...

(Removing their blouse or shirt.)

TIMES...

(Exploring and interacting with the room.)

ONE BY TWO. ONE BY FOUR. TWO
BY ONE. SEV BY FOUR. THREE BY
TWO. FIVE BY FOUR. ONE BY ONE.
WE'RE JUST THREE-QUARTERS
AROUND. THREE BY FOUR.

(Distancing from AUDIENCE.)

NOTHING AT ALL TO SPHERES.

(Demonstrating two spheres using their hands optionally
with their other anatomical parts.)

SOUL...

(Removing their shoes and socks.)

THERE'S A HOLE.

(Holding their chest.)

TRIANGLES FILL.

(Balancing on the tip of their toes.)

YOU ALL PUSH ME TO GO ON...

(Heading to the board.)

TANGENTS.

(Writing " $\tan C = \frac{\sin C}{\cos C}$ ".)

CURVICE (Cont.)

SOHCAHTOA IT UP.

(Standing with one of their sides towards the board.)

HYPOT-NUSE.

(Stretching back.)

RIGHT ANGLES.

(Extending their arms down and back.)

YOU'RE THE SHARPEST TWO DS.

(Finishing their stretch.)

TRIANGULATE. CLASS.

(Shrugging it off. They write " $\sqrt{1 + \tan^2 C} = \sqrt{1 + \frac{\sin^2 C}{\cos^2 C}}$ ".

They then write " $\sqrt{\frac{\cos^2 C}{\cos^2 C} + \frac{\sin^2 C}{\cos^2 C}}$ ". They then cross the denominator of " $\frac{\cos^2 C}{\cos^2 C}$ ". They then cross the numerators of " $\sqrt{\frac{\cos^2 C}{\cos^2 C} + \frac{\sin^2 C}{\cos^2 C}}$ ". They lastly write "1" in between the numerators. They set down the writing instrument. They turn to AUDIENCE.)

YOUR FUND-MENTAL IDENT-TIES.

(They feel themselves.)

ROOT...

(Descending their self-touch.)

SQUARELY ON...

(Grasping thighs.)

ANSWER.

(Ripping off their pants.)

IT IS SEX

(Heading to the board. They draw two vertical lines. They write "sec C" in between the lines. They return to their pose.)

C.

(Realizing they are vulnerable.)

CURVICE (Cont.)

Now let us address it... *C*, otherwise known as, *the speed of light*. A demonstration...

(Frantically running away.)

BLACKOUT

FIN

Score

TRIANGULATE

$\sqrt[3]{(1+\tan^2 C)}$

D. Q. PHAM

Drum Set

6

Drum Set

CURVICE enters.

COMPLEX PLANE

The image displays a musical score for a piece titled "Adagio". The score is arranged in two systems, each featuring a Piano (P) and a Drum Set (DS). The key signature is one sharp (F#), and the time signature is common time (C). The tempo is marked "Adagio".

System 1:

- Piano (P):** The right hand plays a melodic line with eighth and sixteenth notes, including some accidentals. The left hand is mostly silent, with a few notes in the first measure.
- Drum Set (DS):** The drum set is silent throughout the first system.

System 2:

- Piano (P):** The right hand continues the melodic line, becoming more complex with sixteenth-note runs. The left hand remains silent.
- Drum Set (DS):** The drum set is silent for the first three measures of the system, then enters in the fourth measure with a series of eighth-note patterns.

³SIMPLIFY
 $\sqrt[3]{(1+\tan^2 C)}$

D. Q. PHAM

Adagio

CURVICE

Look deep with - in our - selves. One. Sine. Cos.

Piano

Drum Set

Guitar

10

UNUK

Cos squared C plus sin squared C. You all sine'd... Up for this. Co sine'd. There're three points in

Piano

Drum Set

Guitar

18

UNUK

tri - go. E - ver, there are in - fi - nite sides. Know your u - nit cir - cles?

Piano

Drum Set

Guitar

2

25

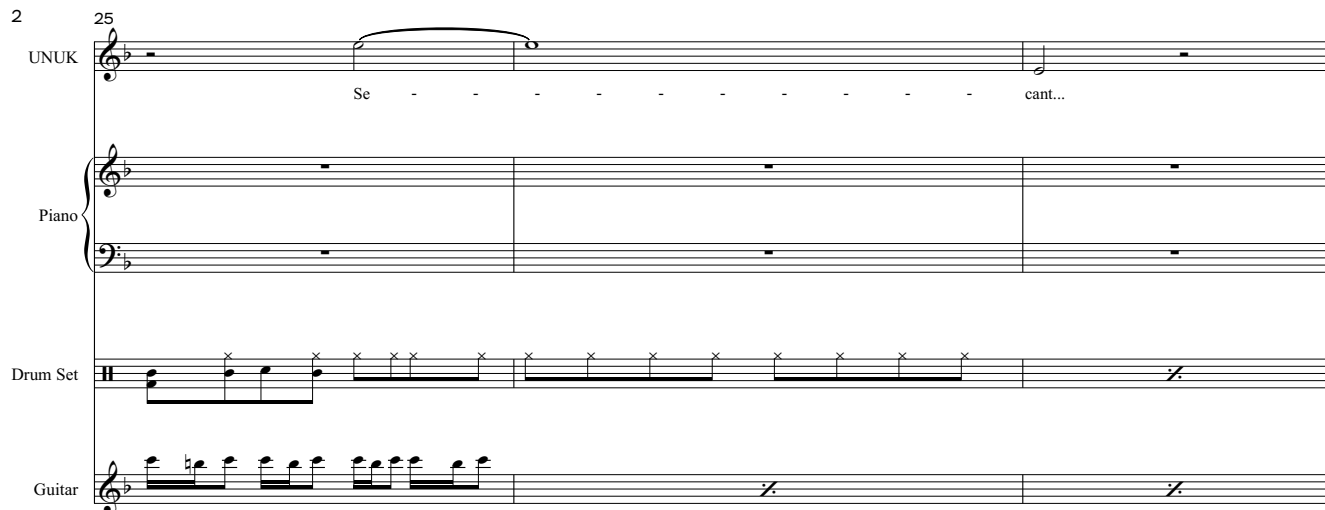
Se - - - - - cant...

UNUK

Piano

Drum Set

Guitar



28

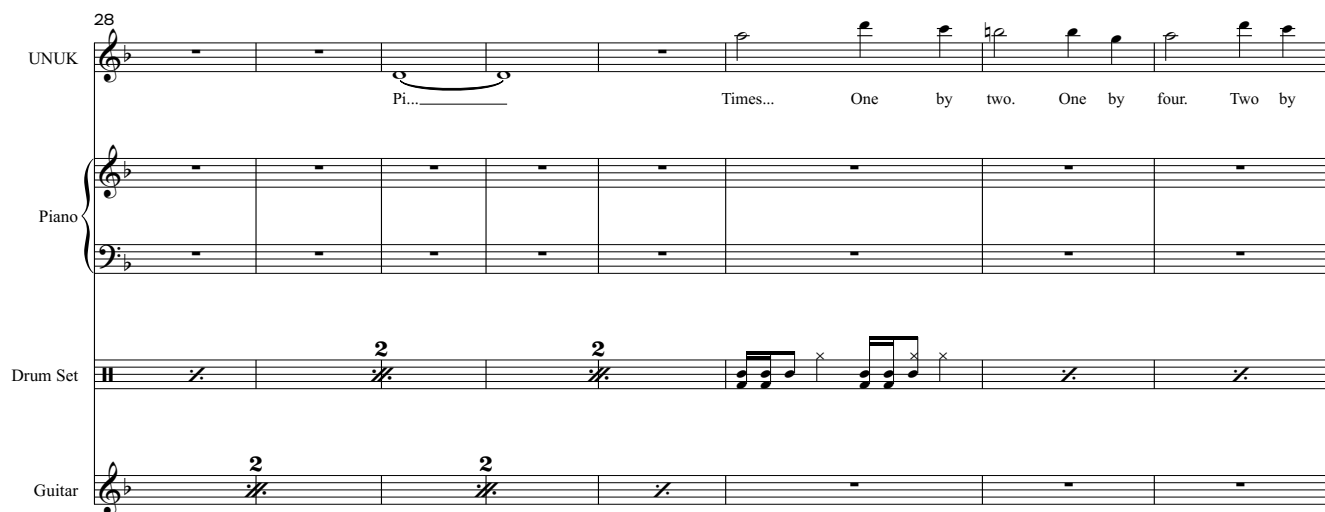
Pi... Times... One by two. One by four. Two by

UNUK

Piano

Drum Set

Guitar



36

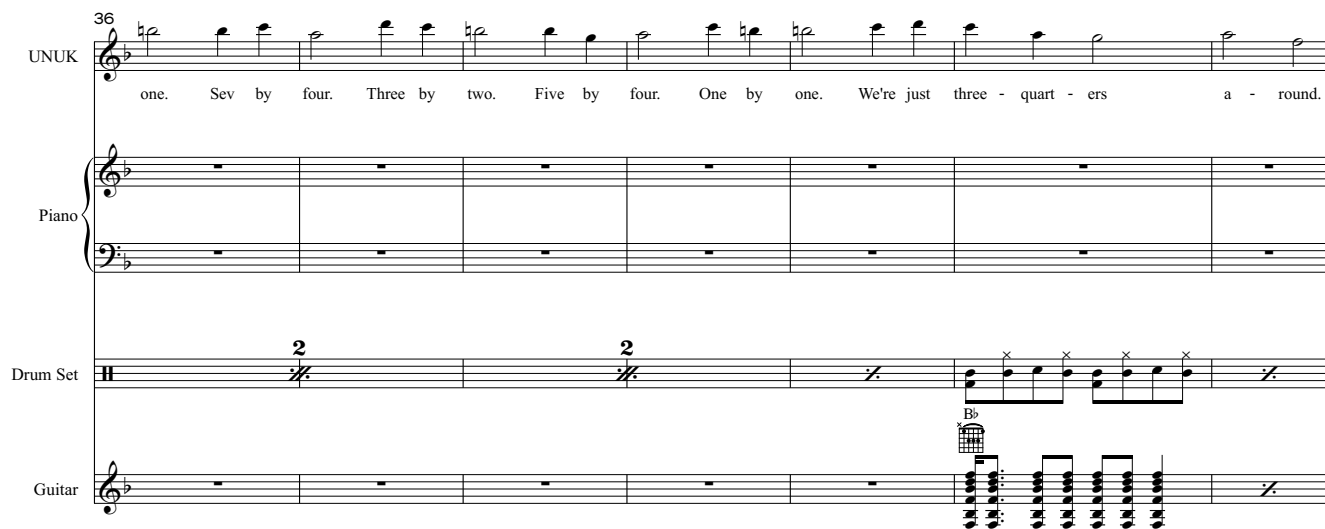
one. Sev by four. Three by two. Five by four. One by one. We're just three - quart - ers a - round.

UNUK

Piano

Drum Set

Guitar



70

UNUK

gles. You're the sharp - - est two Ds.

Piano

Drum Set

Guitar

76

UNUK

Tri-an-gu- late. Class. Your fund-men-tal i-dent- ties.

Piano

Drum Set

Guitar

87

UNUK

Root. _____ Square-ly on... An- swer. It is sex. _____ C.

Piano

Drum Set

Guitar

CURVICE finishes writing "sec C"