

MusicMath

Music Calculator
App for iPhone/iPad/Mac



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Presentation

"MusicMath" is a musical tool that includes a timecode calculator, a tap tempo, a tempo to delay in millisecond and hertz converter, a note to frequency table converter, a sample length converter, a tempo change converter, and a frequency to note converter.

Keyboard shortcuts

Keys	Actions
Left and right arrow	Navigate between MusicMath modules.
Tab	The first press launches the edition of the first editable value, each additional press edits the following value.
Esc	Closes an open menu, or cancels the current edit.
Return	Validates the modification of an edited value and stops editing.
Command ? (macOS)	Open documentation.
Command W or Command Q (macOS)	Quit MusicMath.

Use with mouse, trackpad, or touch gestures



Values can be modified by dragging a finger or clicking with the mouse pointer up or down on them.

The modification can also be done with the mouse wheel or the scroll gestures of the trackpad.

If the edited value is a real number, it is possible to modify the digits after the decimal point by pointing to it.

The main toolbar

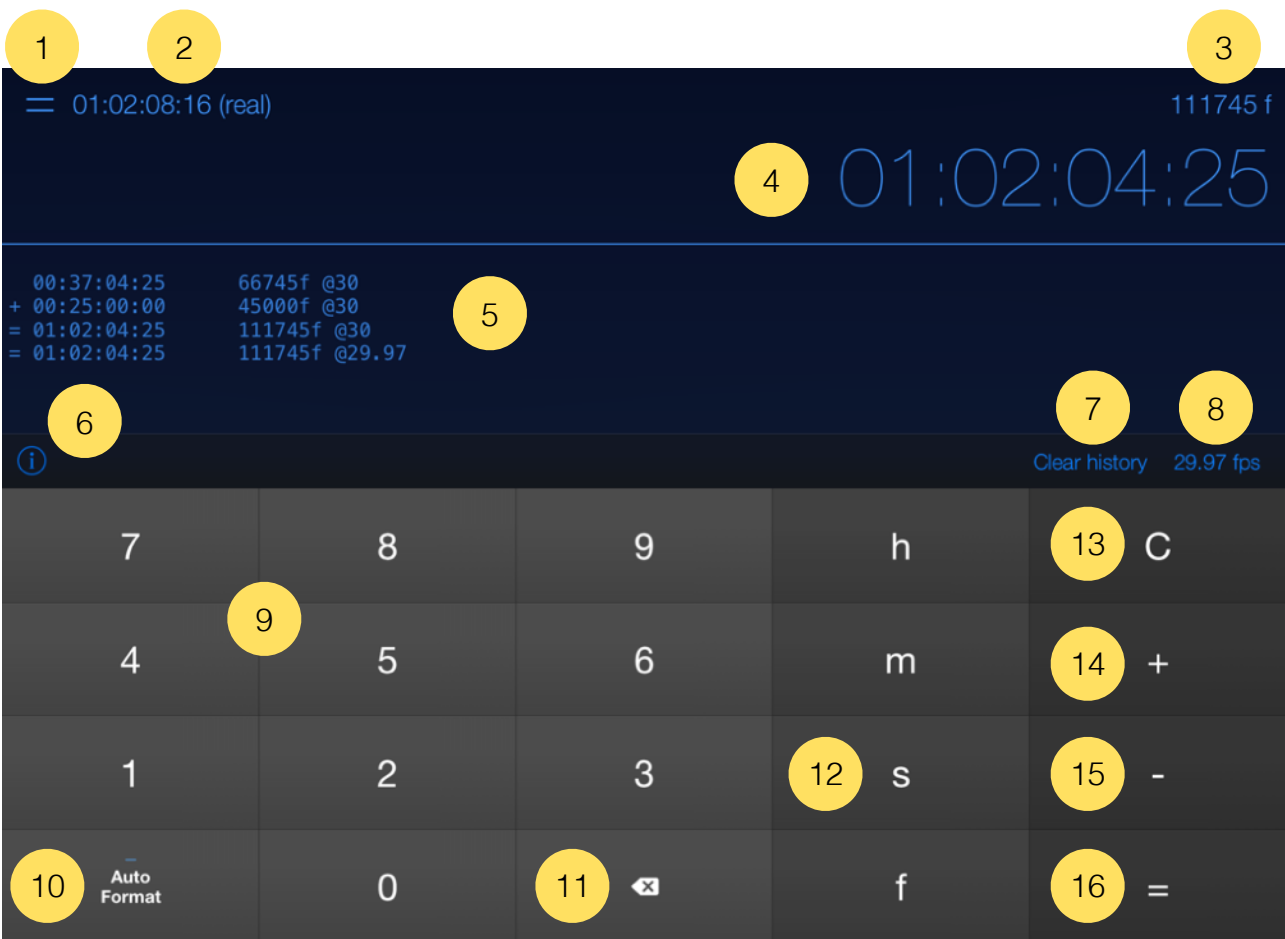
The toolbar at the bottom of the app allows you to select the desired tools.



Timecode calculator

Description

- Add and subtract timecodes or frames
- Convert a number of frames to timecodes
- Simultaneously convert the number of frames and the timecode
- Conversion of timecode when changing the frames format
- Managing frames formats 23.976 fps, 24 fps, 25 fps, 29.94 fps, 29.97 fps, 29.97 fps drop frame, 30 fps, 50 fps, 59.94 fps, 60 fps
- Real time display for formats 23.976 fps, 29.94 fps, 29.97 fps, 59.94 fps
- Unlimited history calculations
- History can be saved and exported to other applications



- | | | |
|--|-----------------------------|---|
| 1. Last used operator | 6. Documentation | 12. Hours, minutes, seconds, frames separator |
| 2. Real time for 23.976, 29.94, 29.97, 59.94 fps formats | 7. Clear history | 13. Clear all |
| 3. Timecode in frames | 8. Frames per second format | 14. Add |
| 4. Timecode | 9. Numeric keypad | 15. Subtract |
| 5. History | 10. Auto format switch | 16. Result |
| | 11. Backspace | |

Use

A timecode format is represented as **00:00:00:00** (hours, minutes, seconds, frames).

The calculator converts the values entered for both timecodes and frames.

You can enter the timecode in free mode or with "Auto Format" mode switched on. In free mode, you can use the hours (key "H"), minutes (key "M"), seconds (key "S") and frames (key "F") keys to indicate each part of the timecode.

12f is equal to **00:00:00:12** (12 frames)

23m is equal to **00:23:00:00** (23 min)

10s is equal to **00:00:10:00** (10 sec)

90m is equal to **01:30:00:00** (1 h 30)

With "Auto Format" (key "A") switched on, you don't have to enter separators, the timecode is formatted automatically. In this mode, it is also possible to modify each component of the time code by moving a finger up or down, by clicking with the mouse, by using the wheel mouse or the gestures of a trackpad directly on the values.

12 is equal to **00:00:00:12** (12 frames)

230000 is equal to **00:23:00:00** (23 min)

1000 is equal to **00:00:10:00** (10 sec)

1300000 is equal to **01:30:00:00** (1 h 30)

To convert a number of frames to timecode, simply enter the number and press "=".

4562 = 00:02:32:02 (format 30 fps)

The number of frames is automatically displayed above the timecode. You can combine different formats when you perform your calculations.

To change the frames per seconds (fps) format, press the button on the list of formats in the toolbar, then select a new format. The program manages the formats 23.976 fps, 24 fps, 25 fps, 29.94 fps, 29.97 fps, 29.97 fps drop frame, 30 fps, 50 fps, 59.94 fps, 60 fps.

Changing a format generates an automatic conversion of the last timecode displayed. For instance if you change the timecode format **00:00:36:24** generated at 30 fps to 25 fps, the number of frames will switch from **1104** to **624**.

When you work with formats 23.976 fps, 29.94 fps, 29.97 fps and 59.94 fps, which are not real-time formats, additional information is displayed above the timecode indicating the

actual position in time. This does not apply to 29.97 fps drop frame format, which is already a real-time format.

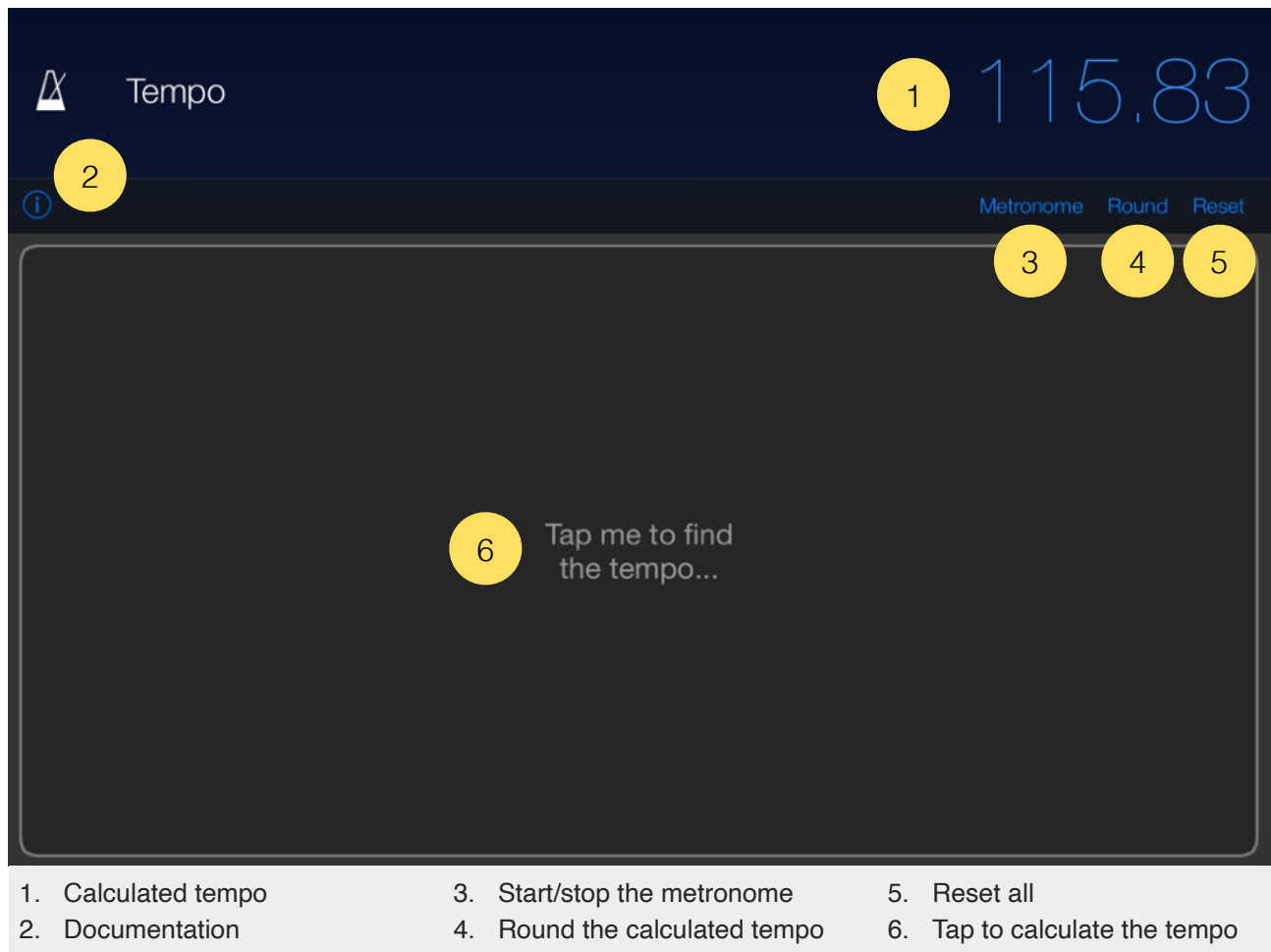
An unlimited history is generated when you make your operations, so you can at any time check your previous calculations. The history can be copied and exported to another application.

To reset the calculator, press the "C" button (key "C"). To clear the history, press the button "Clear History".

Tap tempo

Description

- Improved algorithm for imprecise tap
- Metronome
- Transfer calculated tempo to other MusicMath tools



Use

You can tap on the pad or on any key to get the tempo. You can enter it directly too.

The algorithm takes into account various errors and inaccuracies. If you miss a few measures, the system of calculation does not take it into account.

As soon as the tempo is calculated or entered, you can start the metronome. Press the "Reset" button to reset all calculations.

Tempo to delay table

Description

- Convert tempo to milliseconds and hertz
- Convert for whole-note, half-note, quarter-note, eighth-note, sixteenth-note, thirty-note and sixty-fourth-note for dotted notes and triplets

Length	Delay	Modulation
♩ 1/1	2000.00 ms	0.50 hz
♩ 1/1D	3000.00 ms	0.33 hz
♩ 1/1T	1333.33 ms	0.75 hz
♪ 1/2	1000.00 ms	1.00 hz
♪ 1/2D	1500.00 ms	0.67 hz
♪ 1/2T	666.67 ms	1.50 hz
♩ 1/4	500.00 ms	2.00 hz
♩ 1/4D	750.00 ms	1.33 hz
♩ 1/4T	333.33 ms	3.00 hz
♩ 1/8	250.00 ms	4.00 hz
♩ 1/8D	375.00 ms	2.67 hz
♩ 1/8T	166.67 ms	6.00 hz

1. Tempo 3. Note duration 5. Frequency in hertz
2. Documentation 4. Duration in milliseconds

Use

With the delay table, you can quickly calibrate your delays, echoes, reverbes, chorus, phasers, flangers effects to the beat.

To change the tempo, press the tempo value, then enter a new tempo.

You can also use the module "Tap tempo" to determine a tempo that you don't know the value, it will be copied directly here.

The table shows the calculation values for the whole-note, the half-note, the quarter-note, the eighth-note, the sixteenth-note, the thirty-note and the sixty-fourth-note for dotted notes and triplets.

Note to frequency table

Description

- Convert MIDI notes to frequencies
- Adjustable diapason and root note
- One hundred selectable temperaments
- Visualization of intervals in cents for each temperament
- Taking into account the temperament for the calculation of frequencies
- Plays piano sound when notes are touched

Note	Frequency	Cents	MIDI
E 3	330.01 hz	+2.00	64
F 3	352.39 hz	+15.60	65
F# 3	371.26 hz	+5.90	66
G 3	391.11 hz	-3.90	67
G# 3	417.66 hz	+9.80	68
A 3	440.00 hz	+0.00	69
A# 3	469.87 hz	+13.70	70
B 3	495.00 hz	+3.90	71
C 4	521.47 hz	-5.90	72
C# 4	556.87 hz	+7.80	73
D 4	586.65 hz	-2.00	74
D# 4	626.47 hz	+11.70	75

1. Note of the diapason

2. Diapason

3. Documentation

4. Selected temperament

5. Reset to A440 hz Diapason

6. Notes

7. Frequency of the note

8. Cents offset

9. MIDI note number

Use

To change the reference diapason, press the diapason value, then enter a new frequency for the A3 note (or A4 if you modified the middle C from C3 to C4 in the [preferences](#)).

You can change the root note too for the diapason. Press the root note, and select the note you want in the list.

Return to A3 (or A4) 440 Hz diapason by pressing the button "Reset to 440 Hz".

To change the temperament of the scale, press the button temperament in the toolbar, then select a new temperament in the list.

The frequency of the notes displayed reflects the temperament selected. Deviations generated by temperament are calculated for each note.

The default temperament "Equal temperament" splits frequencies equally between the twelve semitones.

You can play and listen to each note by touching them.

Sample length converter

Description

- Convert length between samples, milliseconds, and tempo

The screenshot shows a dark-themed application interface for a sample length converter. At the top, there are two input fields: 'Sample rate (hz)' with the value '44100' (callout 1) and 'Beats' with the value '4' (callout 2). Below these is a horizontal bar with an information icon (i) and a callout 3. The main area consists of three rows, each with a label on the left and a large input field on the right. The first row is 'Length in samples' with the value '88200' (callout 4). The second row is 'Length in ms' with the value '2000.00' (callout 5). The third row is 'Tempo' with the value '120.00' (callout 6). At the bottom, there is a legend with six numbered items corresponding to the callouts.

Label	Value
Sample rate (hz)	44100
Beats	4
Length in samples	88200
Length in ms	2000.00
Tempo	120.00

- 1. Sample rate in hertz
- 2. Number of beats (needed for the tempo calculation)
- 3. Documentation
- 4. Enter or get the length in samples
- 5. Enter or get the length in milliseconds
- 6. Enter or get the tempo

Use

You can calculate the duration of a sample in milliseconds or get its tempo.

But it is also possible to enter the number of milliseconds to obtain the number of samples, or enter the tempo to obtain the length in samples or in milliseconds.

Press the value you want to change, then enter the new value to automatically calculate the others. The number of beats is only needed to calculate the tempo or get other values from the tempo.

Tempo change converter

Description

- Calculates tempo change by ratio (%) and transposition

The screenshot shows a dark-themed application interface for a tempo change converter. At the top, there's a header bar with a triangle icon and the word 'Tempo'. Below this is a large input field for the original tempo, showing '120.00'. To the left of this field is a small 'i' icon in a circle. Below the header bar is a row of three buttons: 'New tempo', 'Time stretching %', and 'Transpose semis / cents'. The 'New tempo' button is highlighted. To the right of these buttons are three large input fields: '140.00' for the new tempo, '85.71' for time stretching percentage, and '+16.67 %' for the percentage variation. Below these fields are two columns of input fields for transposition: '+02' and '+03' for semis, and '67' and '-33' for cents. A legend at the bottom explains the numbered callouts: 1. Original tempo, 2. Documentation, 3. Swap between original and new tempo, 4. Enter or get new tempo, 5. Enter or get time stretching in %, 6. % tempo variation, 7. Enter or get the semis to change the tempo, 8. Enter or get the cents to change the tempo, 9. Semis for 50 cents notation, 10. Cents for 50 cents notation.

1	Original tempo	5	Enter or get time stretching in %	8	Enter or get the cents to change the tempo
2	Documentation	6	% tempo variation	9	Semis for 50 cents notation
3	Swap between original and new tempo	7	Enter or get the semis to change the tempo	10	Cents for 50 cents notation
4	Enter or get new tempo				

Use

This tool tells you the percentage of time stretching or transposition to apply to a sample to change from one tempo to another.

It is possible to enter any value to automatically calculate the result of the others. Thus it is possible to know the new tempo of a sample after transposition for example.

Frequency to note converter

Description

- Convert a frequency to the closest note and the cents needed
- Plays the frequency

The screenshot shows the app's interface with the following elements and callouts:

- 1**: The frequency input field at the top right, displaying "261.63".
- 2**: The "Freq" label and a sine wave icon at the top left.
- 3**: The "C3" and "A3" reference frequency buttons at the top right.
- 4**: The note "C 3" in the center of the screen.
- 5**: The "00 cents" transposition value in the center.
- 6**: The speaker icon for playing the frequency.
- 7**: The "C 3 +00 cents" transposition result at the bottom.

1. Frequency	4. Note corresponding to the frequency	6. Listen to the frequency
2. Documentation	5. Transposition in 100 cents notation	7. Transposition in 50 cents notation
3. C3 or A3 frequency		

Use

To change the frequency, tap its value, then enter a new frequency.

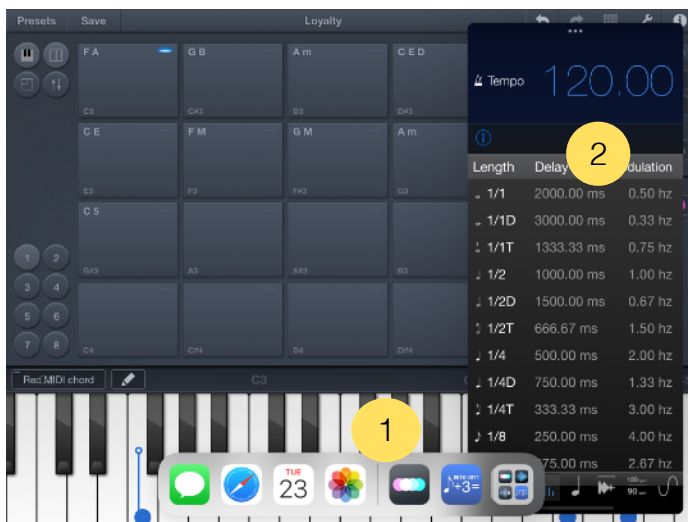
The result indicates the note closest to the frequency, as well as the number of cents needed.

By pressing "C3" or "A3" ("C4" or "A4" if you modified the middle C from C3 to C4 in the [preferences](#)), you will directly obtain the reference frequency of these notes.

"Slide Over" and "Split View" support (iPad app)

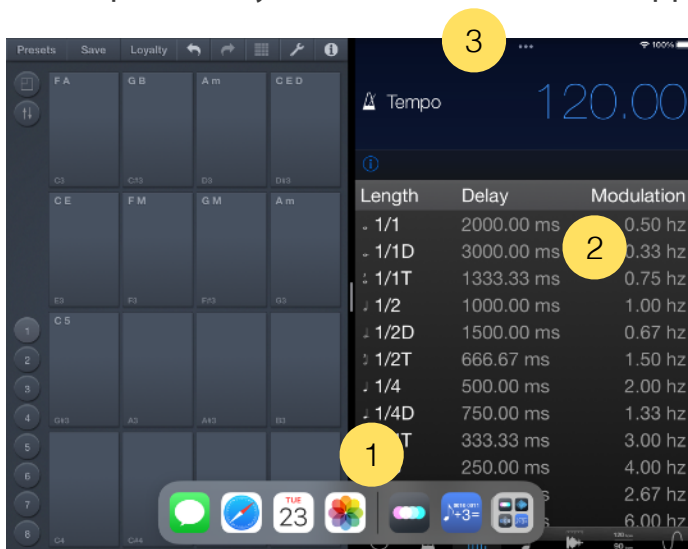
"Slide Over" and "Split View" for iPad are fully supported in "MusicMath".

Use "Slide Over" to work on an application that slides in front of any open application, even over two open applications in "Split View".



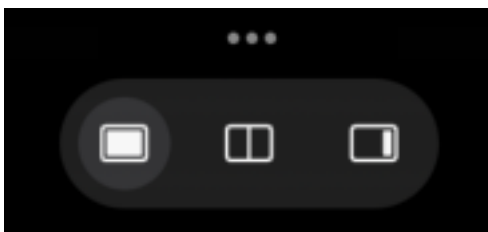
1. *Swipe up from the bottom of the screen to open the Dock.*
2. *On the Dock, touch and hold the second app that you want to open, then drag it to the screen.*

With "Split View", you can view and use two applications at the same time.



1. *Swipe up from the bottom of the screen to open the Dock.*
2. *On the Dock, touch and hold the second app that you want to open, then drag it off the dock.*
3. *When the app opens in Slide Over, drag the top horizontal bar inside the title area down.*

"MusicMath" will adapt its size to the available space.



Since iPadOS 15, using "Slide Over" and "Split View" has been simplified. Just touch the 3 little dots at the top of the screen to activate either mode.

Preferences

The preferences are accessible under "MusicMath" from the settings on iOS, and in the "MusicMath" menu at the top left on macOS.

▸ Middle C

Allows you to choose how the middle C will be labeled. You can choose C3 or C4.

Support

To submit a bug report, please contact support from the website:

<https://dev.laurentcolson.com>

Do not forget to specify for which application you are requesting support, the type of device (iPhone, iPad, Mac), the version of the operating system, the way to reproduce the bug. The more details you provide, the faster the bug will be fixed.

For any issues related to the purchase, refund, app download, or occurring on the App Store, please contact Apple Support directly here:

<https://support.apple.com/apps>