

Physics of Music - Notes

Tuning

Frequencies for equal-tempered scale, A₄ = 440 Hz

Other tuning choices, A₄ =

[432](#) [434](#) [436](#) [438](#) 440 [442](#) [444](#) [446](#)

Speed of Sound = 345 m/s = 1130 ft/s = 770 miles/hr

[More about Speed of Sound](#)

("Middle C" is C₄)

Note	Frequency (Hz)	Wavelength (cm)
C ₀	16.35	2109.89
C [#] ₀ /D ^b ₀	17.32	1991.47
D ₀	18.35	1879.69
D [#] ₀ /E ^b ₀	19.45	1774.20
E ₀	20.60	1674.62
F ₀	21.83	1580.63
F [#] ₀ /G ^b ₀	23.12	1491.91
G ₀	24.50	1408.18
G [#] ₀ /A ^b ₀	25.96	1329.14
A ₀	27.50	1254.55
A [#] ₀ /B ^b ₀	29.14	1184.13
B ₀	30.87	1117.67
C ₁	32.70	1054.94
C [#] ₁ /D ^b ₁	34.65	995.73
D ₁	36.71	939.85
D [#] ₁ /E ^b ₁	38.89	887.10
E ₁	41.20	837.31
F ₁	43.65	790.31
F [#] ₁ /G ^b ₁	46.25	745.96

G ₁	49.00	704.09
G [#] ₁ /A ^b ₁	51.91	664.57
A ₁	55.00	627.27
A [#] ₁ /B ^b ₁	58.27	592.07
B ₁	61.74	558.84
C ₂	65.41	527.47
C [#] ₂ /D ^b ₂	69.30	497.87
D ₂	73.42	469.92
D [#] ₂ /E ^b ₂	77.78	443.55
E ₂	82.41	418.65
F ₂	87.31	395.16
F [#] ₂ /G ^b ₂	92.50	372.98
G ₂	98.00	352.04
G [#] ₂ /A ^b ₂	103.83	332.29
A ₂	110.00	313.64
A [#] ₂ /B ^b ₂	116.54	296.03
B ₂	123.47	279.42
C ₃	130.81	263.74
C [#] ₃ /D ^b ₃	138.59	248.93
D ₃	146.83	234.96
D [#] ₃ /E ^b ₃	155.56	221.77
E ₃	164.81	209.33
F ₃	174.61	197.58
F [#] ₃ /G ^b ₃	185.00	186.49
G ₃	196.00	176.02
G [#] ₃ /A ^b ₃	207.65	166.14
A ₃	220.00	156.82
A [#] ₃ /B ^b ₃	233.08	148.02
B ₃	246.94	139.71
C ₄	261.63	131.87
C [#] ₄ /D ^b ₄	277.18	124.47
D ₄	293.66	117.48
D [#] ₄ /E ^b ₄	311.13	110.89

E ₄	329.63	104.66
F ₄	349.23	98.79
F [#] ₄ /G ^b ₄	369.99	93.24
G ₄	392.00	88.01
G [#] ₄ /A ^b ₄	415.30	83.07
A ₄	440.00	78.41
A [#] ₄ /B ^b ₄	466.16	74.01
B ₄	493.88	69.85
C ₅	523.25	65.93
C [#] ₅ /D ^b ₅	554.37	62.23
D ₅	587.33	58.74
D [#] ₅ /E ^b ₅	622.25	55.44
E ₅	659.25	52.33
F ₅	698.46	49.39
F [#] ₅ /G ^b ₅	739.99	46.62
G ₅	783.99	44.01
G [#] ₅ /A ^b ₅	830.61	41.54
A ₅	880.00	39.20
A [#] ₅ /B ^b ₅	932.33	37.00
B ₅	987.77	34.93
C ₆	1046.50	32.97
C [#] ₆ /D ^b ₆	1108.73	31.12
D ₆	1174.66	29.37
D [#] ₆ /E ^b ₆	1244.51	27.72
E ₆	1318.51	26.17
F ₆	1396.91	24.70
F [#] ₆ /G ^b ₆	1479.98	23.31
G ₆	1567.98	22.00
G [#] ₆ /A ^b ₆	1661.22	20.77
A ₆	1760.00	19.60
A [#] ₆ /B ^b ₆	1864.66	18.50
B ₆	1975.53	17.46
C ₇	2093.00	16.48

$C^{\#}_7/D^b_7$	2217.46	15.56
D_7	2349.32	14.69
$D^{\#}_7/E^b_7$	2489.02	13.86
E_7	2637.02	13.08
F_7	2793.83	12.35
$F^{\#}_7/G^b_7$	2959.96	11.66
G_7	3135.96	11.00
$G^{\#}_7/A^b_7$	3322.44	10.38
A_7	3520.00	9.80
$A^{\#}_7/B^b_7$	3729.31	9.25
B_7	3951.07	8.73
C_8	4186.01	8.24
$C^{\#}_8/D^b_8$	4434.92	7.78
D_8	4698.63	7.34
$D^{\#}_8/E^b_8$	4978.03	6.93
E_8	5274.04	6.54
F_8	5587.65	6.17
$F^{\#}_8/G^b_8$	5919.91	5.83
G_8	6271.93	5.50
$G^{\#}_8/A^b_8$	6644.88	5.19
A_8	7040.00	4.90
$A^{\#}_8/B^b_8$	7458.62	4.63
B_8	7902.13	4.37

(To convert lengths in cm to inches, divide by 2.54)

[More information on the equal tempered scale](#)
[Equations used for this table](#)

Questions/Comments to: suits@mtu.edu

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