

MUSICAL NUMBERS FOR ALL OCTAVES

In[80]=

Out[80]= FOR MUSICAL NUMBERS

Out[81]= ALL OCTAVES

Here is a notebook to calculate the musical Numbers for any octave length and 2 - 44 partitions of that octave.

In[82]= **oct = 4**

Out[82]= 4

In[83]= **eqtwo = Table[N[oct^(y/2)], {y, 1, 2}]**

Out[83]= {2., 4.}

In[84]= **eqthree = Table[N[oct^(y/3)], {y, 1, 3}]**

Out[84]= {1.5874, 2.51984, 4.}

In[85]= **eqfour = Table[N[oct^(y/4)], {y, 1, 4}]**

Out[85]= {1.41421, 2., 2.82843, 4.}

In[86]= **eqfive = Table[N[oct^(y/5)], {y, 1, 5}]**

Out[86]= {1.31951, 1.7411, 2.2974, 3.03143, 4.}

In[87]= **eqsix = Table[N[oct^(y/6)], {y, 1, 6}]**

Out[87]= {1.25992, 1.5874, 2., 2.51984, 3.1748, 4.}

In[88]= **eqseven = Table[N[oct^(y/7)], {y, 1, 7}]**

Out[88]= {1.21901, 1.48599, 1.81145, 2.20818, 2.6918, 3.28134, 4.}

In[89]= **eqeight = Table[N[oct^(y/8)], {y, 1, 8}]**

Out[89]= {1.18921, 1.41421, 1.68179, 2., 2.37841, 2.82843, 3.36359, 4.}

In[90]= **eqnine = Table[N[oct^(y/9)], {y, 1, 9}]**

Out[90]= {1.16653, 1.36079, 1.5874, 1.85175, 2.16012, 2.51984, 2.93947, 3.42898, 4.}

In[91]= **eqten = Table[N[oct^(y/10)], {y, 1, 10}]**

Out[91]= {1.1487, 1.31951, 1.51572, 1.7411, 2., 2.2974, 2.63902, 3.03143, 3.4822, 4.}

In[92]= **eqeleven = Table[N[oct^(y/11)], {y, 1, 11}]**

Out[92]= {1.13431, 1.28666, 1.45948, 1.65551, 1.87786, 2.13008, 2.41618, 2.7407, 3.10881, 3.52637, 4.}

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In[93]:= eqtwelve = Table[N[oct^(y/12)], {y, 1, 12}]
Out[93]= {1.12246, 1.25992, 1.41421, 1.5874, 1.7818,
  2., 2.24492, 2.51984, 2.82843, 3.1748, 3.56359, 4.}

In[94]:= eqthirteen = Table[N[oct^(n/13)], 6], {n, 0, 13}]
Out[94]= {1.00000, 1.11253, 1.23773, 1.37701, 1.53197, 1.70436,
  1.89616, 2.10953, 2.34692, 2.61102, 2.90485, 3.23173, 3.59540, 4.00000}

In[95]:= eqfourteen = Table[N[oct^(n/14)], 6], {n, 0, 14}]
Out[95]= {1.00000, 1.10409, 1.21901, 1.34590, 1.48599, 1.64067, 1.81145,
  2.00000, 2.20818, 2.43803, 2.69180, 2.97199, 3.28134, 3.62289, 4.00000}

In[96]:= eqfifteen = Table[N[oct^(n/15)], 6], {n, 0, 15}]
Out[96]= {1.00000, 1.09682, 1.20303, 1.31951, 1.44727, 1.58740, 1.74110, 1.90968,
  2.09459, 2.29740, 2.51984, 2.76383, 3.03143, 3.32495, 3.64689, 4.00000}

In[97]:= eqsixteen = Table[N[oct^(n/16)], 6], {n, 0, 16}]
Out[97]= {1.00000, 1.09051, 1.18921, 1.29684, 1.41421, 1.54221, 1.68179, 1.83401,
  2.00000, 2.18102, 2.37841, 2.59368, 2.82843, 3.08442, 3.36359, 3.66802, 4.00000}

In[98]:= eq17 = Table[N[oct^(n/17)], 6], {n, 0, 17}]
Out[98]= {1.00000, 1.08496, 1.17715, 1.27716, 1.38567, 1.50341, 1.63114, 1.76973, 1.92009,
  2.08323, 2.26023, 2.45227, 2.66062, 2.88668, 3.13194, 3.39805, 3.68676, 4.00000}

In[99]:= eq18 = Table[N[oct^(n/18)], 6], {n, 0, 18}]
Out[99]= {1.00000, 1.08006, 1.16653, 1.25992, 1.36079, 1.46973, 1.58740, 1.71449, 1.85175, 2.00000,
  2.16012, 2.33306, 2.51984, 2.72158, 2.93947, 3.17480, 3.42898, 3.70350, 4.00000}

In[100]:= eq19 = Table[N[oct^(n/19)], 6], {n, 0, 19}]
Out[100]= {1.00000, 1.07569, 1.15711, 1.24469, 1.33890, 1.44025, 1.54926, 1.66652, 1.79266, 1.92835,
  2.07431, 2.23132, 2.40021, 2.58188, 2.77730, 2.98752, 3.21364, 3.45689, 3.71854, 4.00000}

In[101]:= eq20 = Table[N[oct^(n/20)], 6], {n, 0, 20}]
Out[101]= {1.00000, 1.07177, 1.14870, 1.23114, 1.31951, 1.41421,
  1.51572, 1.62450, 1.74110, 1.86607, 2.00000, 2.14355, 2.29740,
  2.46229, 2.63902, 2.82843, 3.03143, 3.24901, 3.48220, 3.73213, 4.00000}

In[102]:= eq21 = Table[N[oct^(n/21)], 6], {n, 0, 21}]
Out[102]= {1.00000, 1.06824, 1.14114, 1.21901, 1.30220, 1.39107,
  1.48599, 1.58740, 1.69573, 1.81145, 1.93506, 2.06712, 2.20818, 2.35887,
  2.51984, 2.69180, 2.87549, 3.07172, 3.28134, 3.50527, 3.74447, 4.00000}

In[103]:= eq22 = Table[N[oct^(n/22)], 6], {n, 0, 22}]
Out[103]= {1.00000, 1.06504, 1.13431, 1.20809, 1.28666, 1.37035, 1.45948,
  1.55441, 1.65551, 1.76318, 1.87786, 2.00000, 2.13008, 2.26863, 2.41618,
  2.57333, 2.74070, 2.91896, 3.10881, 3.31101, 3.52637, 3.75572, 4.00000}

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In[104]:= **eq23 = Table**[**N**[**oct**^(**n**/**23**), **6**], {**n**, **0**, **23**}]

Out[104]:= {1.00000, 1.06213, 1.12811, 1.19820, 1.27264, 1.35171, 1.43568, 1.52488,
1.61962, 1.72024, 1.82711, 1.94063, 2.06119, 2.18925, 2.32526, 2.46972,
2.62316, 2.78613, 2.95922, 3.14307, 3.33834, 3.54574, 3.76603, 4.00000}

In[105]:= **eqs24 = Table**[**N**[**oct**^(**n**/**24**), **6**], {**n**, **0**, **24**}]

Out[105]:= {1.00000, 1.05946, 1.12246, 1.18921, 1.25992, 1.33484, 1.41421, 1.49831,
1.58740, 1.68179, 1.78180, 1.88775, 2.00000, 2.11893, 2.24492, 2.37841, 2.51984,
2.66968, 2.82843, 2.99661, 3.17480, 3.36359, 3.56359, 3.77550, 4.00000}

In[106]:= **eqs25 = Table**[**N**[**oct**^(**n**/**25**), **6**], {**n**, **0**, **25**}]

Out[106]:= {1.00000, 1.05702, 1.11729, 1.18099, 1.24833, 1.31951, 1.39474, 1.47427,
1.55833, 1.64718, 1.74110, 1.84038, 1.94531, 2.05623, 2.17347, 2.29740, 2.42839,
2.56685, 2.71321, 2.86791, 3.03143, 3.20428, 3.38698, 3.58010, 3.78423, 4.00000}

In[107]:= **eqs26 = Table**[**N**[**oct**^(**n**/**26**), **6**], {**n**, **0**, **26**}]

Out[107]:= {1.00000, 1.05477, 1.11253, 1.17346, 1.23773, 1.30551, 1.37701, 1.45242, 1.53197,
1.61587, 1.70436, 1.79770, 1.89616, 2.00000, 2.10953, 2.22506, 2.34692, 2.47545,
2.61102, 2.75402, 2.90485, 3.06393, 3.23173, 3.40872, 3.59540, 3.79231, 4.00000}

In[108]:= **eqs26 = Table**[**N**[**oct**^(**n**/**26**), **6**], {**n**, **0**, **26**}]

Out[108]:= {1.00000, 1.05477, 1.11253, 1.17346, 1.23773, 1.30551, 1.37701, 1.45242, 1.53197,
1.61587, 1.70436, 1.79770, 1.89616, 2.00000, 2.10953, 2.22506, 2.34692, 2.47545,
2.61102, 2.75402, 2.90485, 3.06393, 3.23173, 3.40872, 3.59540, 3.79231, 4.00000}

In[109]:= **eqs27 = Table**[**N**[**oct**^(**n**/**27**), **6**], {**n**, **0**, **27**}]

Out[109]:= {1.00000, 1.05269, 1.10815, 1.16653, 1.22799, 1.29268, 1.36079, 1.43248, 1.50795, 1.58740,
1.67103, 1.75907, 1.85175, 1.94931, 2.05201, 2.16012, 2.27393, 2.39373, 2.51984,
2.65260, 2.79235, 2.93947, 3.09434, 3.25736, 3.42898, 3.60963, 3.79981, 4.00000}

In[110]:= **eqs28 = Table**[**N**[**oct**^(**n**/**28**), **6**], {**n**, **0**, **28**}]

Out[110]:= {1.00000, 1.05076, 1.10409, 1.16013, 1.21901, 1.28089, 1.34590, 1.41421, 1.48599, 1.56142,
1.64067, 1.72395, 1.81145, 1.90339, 2.00000, 2.10151, 2.20818, 2.32026, 2.43803, 2.56177,
2.69180, 2.82843, 2.97199, 3.12284, 3.28134, 3.44789, 3.62289, 3.80678, 4.00000}

In[111]:= **eqs29 = Table**[**N**[**oct**^(**n**/**29**), **6**], {**n**, **0**, **29**}]

Out[111]:= {1.00000, 1.04896, 1.10033, 1.15420, 1.21072, 1.27000, 1.33218, 1.39741, 1.46584, 1.53761,
1.61290, 1.69187, 1.77471, 1.86161, 1.95276, 2.04838, 2.14868, 2.25388, 2.36424, 2.48001,
2.60144, 2.72882, 2.86243, 3.00259, 3.14961, 3.30383, 3.46560, 3.63529, 3.81329, 4.00000}

In[112]:= eqs30 = Table[N[oct^(n/30)], 6], {n, 0, 30}]

Out[112]:= {1.00000, 1.04729, 1.09682, 1.14870, 1.20303, 1.25992, 1.31951,
1.38191, 1.44727, 1.51572, 1.58740, 1.66248, 1.74110, 1.82344, 1.90968,
2.00000, 2.09459, 2.19365, 2.29740, 2.40605, 2.51984, 2.63902, 2.76383,
2.89454, 3.03143, 3.17480, 3.32495, 3.48220, 3.64689, 3.81937, 4.00000}

In[113]:= eqs31 = Table[N[oct^(n/31)], 6], {n, 0, 31}]

Out[113]:= {1.00000, 1.04573, 1.09356, 1.14357, 1.19587, 1.25057, 1.30776, 1.36757,
1.43011, 1.49552, 1.56391, 1.63544, 1.71023, 1.78845, 1.87024, 1.95578,
2.04522, 2.13876, 2.23657, 2.33886, 2.44583, 2.55769, 2.67466, 2.79698,
2.92490, 3.05867, 3.19855, 3.34484, 3.49781, 3.65778, 3.82506, 4.00000}

In[114]:= eqs32 = Table[N[oct^(n/32)], 6], {n, 0, 32}]

Out[114]:= {1.00000, 1.04427, 1.09051, 1.13879, 1.18921, 1.24186, 1.29684, 1.35426,
1.41421, 1.47683, 1.54221, 1.61049, 1.68179, 1.75625, 1.83401, 1.91521,
2.00000, 2.08855, 2.18102, 2.27758, 2.37841, 2.48372, 2.59368, 2.70851, 2.82843,
2.95365, 3.08442, 3.22098, 3.36359, 3.51250, 3.66802, 3.83041, 4.00000}

In[115]:= eqs33 = Table[N[oct^(n/33)], 6], {n, 0, 33}]

Out[115]:= {1.00000, 1.04290, 1.08765, 1.13431, 1.18298, 1.23373, 1.28666, 1.34187,
1.39944, 1.45948, 1.52210, 1.58740, 1.65551, 1.72653, 1.80061, 1.87786, 1.95843,
2.04245, 2.13008, 2.22147, 2.31678, 2.41618, 2.51984, 2.62795, 2.74070, 2.85829,
2.98092, 3.10881, 3.24219, 3.38129, 3.52637, 3.67766, 3.83544, 4.00000}

In[116]:= eqs34 = Table[N[oct^(n/34)], 6], {n, 0, 34}]

Out[116]:= {1.00000, 1.04162, 1.08496, 1.13012, 1.17715, 1.22613, 1.27716, 1.33031,
1.38567, 1.44334, 1.50341, 1.56597, 1.63114, 1.69902, 1.76973, 1.84338, 1.92009,
2.00000, 2.08323, 2.16993, 2.26023, 2.35429, 2.45227, 2.55432, 2.66062, 2.77135,
2.88668, 3.00681, 3.13194, 3.26228, 3.39805, 3.53946, 3.68676, 3.84019, 4.00000}

In[117]:= eqs35 = Table[N[oct^(n/35)], 6], {n, 0, 35}]

Out[117]:= {1.00000, 1.04040, 1.08244, 1.12617, 1.17167, 1.21901, 1.26827, 1.31951, 1.37282,
1.42829, 1.48599, 1.54603, 1.60850, 1.67349, 1.74110, 1.81145, 1.88464, 1.96078,
2.04000, 2.12243, 2.20818, 2.29740, 2.39022, 2.48679, 2.58727, 2.69180, 2.80056,
2.91371, 3.03143, 3.15391, 3.28134, 3.41392, 3.55185, 3.69536, 3.84466, 4.00000}

In[118]:= eqs36 = Table[N[oct^(n/36)], 6], {n, 0, 36}]

Out[118]:= {1.00000, 1.03926, 1.08006, 1.12246, 1.16653, 1.21233, 1.25992, 1.30938, 1.36079, 1.41421,
1.46973, 1.52744, 1.58740, 1.64972, 1.71449, 1.78180, 1.85175, 1.92445, 2.00000,
2.07852, 2.16012, 2.24492, 2.33306, 2.42465, 2.51984, 2.61877, 2.72158, 2.82843,
2.93947, 3.05487, 3.17480, 3.29944, 3.42898, 3.56359, 3.70350, 3.84890, 4.00000}

In[119]= eqs37 = Table[N[oct^(n/37), 6], {n, 0, 37}]

Out[119]= {1.00000, 1.03818, 1.07781, 1.11896, 1.16168, 1.20603, 1.25208, 1.29988, 1.34951, 1.40103,
1.45452, 1.51005, 1.56770, 1.62755, 1.68969, 1.75420, 1.82117, 1.89070, 1.96288, 2.03782,
2.11562, 2.19639, 2.28025, 2.36730, 2.45768, 2.55151, 2.64892, 2.75005, 2.85505,
2.96405, 3.07721, 3.19469, 3.31666, 3.44328, 3.57474, 3.71122, 3.85290, 4.00000}

In[120]= eqs38 = Table[N[oct^(n/38), 6], {n, 0, 38}]

Out[120]= {1.00000, 1.03716, 1.07569, 1.11566, 1.15711, 1.20010, 1.24469, 1.29094, 1.33890, 1.38865,
1.44025, 1.49376, 1.54926, 1.60682, 1.66652, 1.72844, 1.79266, 1.85927, 1.92835, 2.00000,
2.07431, 2.15138, 2.23132, 2.31422, 2.40021, 2.48939, 2.58188, 2.67781, 2.77730, 2.88049,
2.98752, 3.09852, 3.21364, 3.33305, 3.45689, 3.58533, 3.71854, 3.85670, 4.00000}

In[121]= eqs39 = Table[N[oct^(n/39), 6], {n, 0, 39}]

Out[121]= {1.00000, 1.03619, 1.07368, 1.11253, 1.15279, 1.19450, 1.23773, 1.28251, 1.32892, 1.37701,
1.42684, 1.47847, 1.53197, 1.58740, 1.64484, 1.70436, 1.76603, 1.82994, 1.89616, 1.96477,
2.03586, 2.10953, 2.18587, 2.26496, 2.34692, 2.43185, 2.51984, 2.61102, 2.70550, 2.80340,
2.90485, 3.00996, 3.11887, 3.23173, 3.34867, 3.46985, 3.59540, 3.72550, 3.86031, 4.00000}

In[122]= eqs40 = Table[N[oct^(n/40), 6], {n, 0, 40}]

Out[122]= {1.00000, 1.03526, 1.07177, 1.10957, 1.14870, 1.18921, 1.23114, 1.27456,
1.31951, 1.36604, 1.41421, 1.46409, 1.51572, 1.56917, 1.62450, 1.68179,
1.74110, 1.80250, 1.86607, 1.93187, 2.00000, 2.07053, 2.14355, 2.21914,
2.29740, 2.37841, 2.46229, 2.54912, 2.63902, 2.73208, 2.82843, 2.92817, 3.03143,
3.13834, 3.24901, 3.36359, 3.48220, 3.60500, 3.73213, 3.86375, 4.00000}

In[123]= eqs41 = Table[N[oct^(n/41), 6], {n, 0, 41}]

Out[123]= {1.00000, 1.03439, 1.06996, 1.10676, 1.14482, 1.18419, 1.22492, 1.26704,
1.31061, 1.35569, 1.40231, 1.45054, 1.50042, 1.55202, 1.60539, 1.66060,
1.71771, 1.77678, 1.83789, 1.90109, 1.96647, 2.03410, 2.10405, 2.17641, 2.25126,
2.32868, 2.40876, 2.49160, 2.57729, 2.66592, 2.75760, 2.85244, 2.95053, 3.05200,
3.15696, 3.26553, 3.37783, 3.49400, 3.61416, 3.73845, 3.86701, 4.00000}

In[124]= eqs42 = Table[N[oct^(n/42), 6], {n, 0, 42}]

Out[124]= {1.00000, 1.03356, 1.06824, 1.10409, 1.14114, 1.17943, 1.21901, 1.25992,
1.30220, 1.34590, 1.39107, 1.43775, 1.48599, 1.53586, 1.58740, 1.64067, 1.69573,
1.75263, 1.81145, 1.87224, 1.93506, 2.00000, 2.06712, 2.13648, 2.20818, 2.28228,
2.35887, 2.43803, 2.51984, 2.60440, 2.69180, 2.78213, 2.87549, 2.97199, 3.07172,
3.17480, 3.28134, 3.39146, 3.50527, 3.62289, 3.74447, 3.87013, 4.00000}

In[125]= eqs43 = Table[N[oct^(n/43), 6], {n, 0, 43}]

Out[125]= {1.00000, 1.03276, 1.06660, 1.10155, 1.13764, 1.17492, 1.21341, 1.25317,
1.29423, 1.33663, 1.38043, 1.42566, 1.47237, 1.52061, 1.57043, 1.62189, 1.67503,
1.72991, 1.78659, 1.84513, 1.90558, 1.96802, 2.03250, 2.09909, 2.16787, 2.23890,
2.31226, 2.38802, 2.46626, 2.54707, 2.63052, 2.71671, 2.80572, 2.89765, 2.99259,
3.09064, 3.19191, 3.29649, 3.40450, 3.51604, 3.63125, 3.75022, 3.87310, 4.00000}

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In[126]:= eqs44 = Table[N[oct^(n / 44), 6], {n, 0, 44}]
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Out[126]:= {1.00000, 1.03201, 1.06504, 1.09913, 1.13431, 1.17062, 1.20809, 1.24676, 1.28666,  
1.32785, 1.37035, 1.41421, 1.45948, 1.50620, 1.55441, 1.60416, 1.65551, 1.70850,  
1.76318, 1.81962, 1.87786, 1.93797, 2.00000, 2.06402, 2.13008, 2.19826, 2.26863,  
2.34124, 2.41618, 2.49352, 2.57333, 2.65570, 2.74070, 2.82843, 2.91896, 3.01239,  
3.10881, 3.20832, 3.31101, 3.41699, 3.52637, 3.63924, 3.75572, 3.87594, 4.00000}
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