

MUSICAL NUMBERS FOR ALL OCTAVES

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

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In[35]:= oct = 3
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Out[35]= 3
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In[36]:= eqtwo = Table[N[oct^(y/2)], {y, 1, 2}]
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Out[36]= {1.73205, 3.}
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In[37]:= eqthree = Table[N[oct^(y/3)], {y, 1, 3}]
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Out[37]= {1.44225, 2.08008, 3.}
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In[38]:= eqfour = Table[N[oct^(y/4)], {y, 1, 4}]
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Out[38]= {1.31607, 1.73205, 2.27951, 3.}
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In[39]:= eqfive = Table[N[oct^(y/5)], {y, 1, 5}]
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Out[39]= {1.24573, 1.55185, 1.93318, 2.40822, 3.}
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In[40]:= eqsix = Table[N[oct^(y/6)], {y, 1, 6}]
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Out[40]= {1.20094, 1.44225, 1.73205, 2.08008, 2.49805, 3.}
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In[41]:= eqseven = Table[N[oct^(y/7)], {y, 1, 7}]
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Out[41]= {1.16993, 1.36874, 1.60133, 1.87344, 2.1918, 2.56425, 3.}
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In[42]:= eqeight = Table[N[oct^(y/8)], {y, 1, 8}]
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Out[42]= {1.1472, 1.31607, 1.5098, 1.73205, 1.98701, 2.27951, 2.61506, 3.}
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In[43]:= eqnine = Table[N[oct^(y/9)], {y, 1, 9}]
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Out[43]= {1.12983, 1.27652, 1.44225, 1.6295, 1.84106, 2.08008, 2.35014, 2.65526, 3.}
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In[44]:= eqten = Table[N[oct^(y/10)], {y, 1, 10}]
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Out[44]= {1.11612, 1.24573, 1.39039, 1.55185, 1.73205, 1.93318, 2.15767, 2.40822, 2.68788, 3.}
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In[45]:= eqeleven = Table[N[oct^(y/11)], {y, 1, 11}]
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Out[45]= {1.10503, 1.22109, 1.34935, 1.49107, 1.64768, 1.82074, 2.01198, 2.2233, 2.45681, 2.71485, 3.}
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In[46]:= eqtwelve = Table[N[oct^(y/12)], {y, 1, 12}]
Out[46]:= {1.09587, 1.20094, 1.31607, 1.44225, 1.58052,
  1.73205, 1.89811, 2.08008, 2.27951, 2.49805, 2.73754, 3.}

In[47]:= eqthirteen = Table[N[oct^(n/13)], 6], {n, 0, 13}]
Out[47]:= {1.00000, 1.08818, 1.18414, 1.28856, 1.40219, 1.52584,
  1.66039, 1.80681, 1.96613, 2.13951, 2.32818, 2.53348, 2.75689, 3.00000}

In[48]:= eqfourteen = Table[N[oct^(n/14)], 6], {n, 0, 14}]
Out[48]:= {1.00000, 1.08163, 1.16993, 1.26544, 1.36874, 1.48047, 1.60133,
  1.73205, 1.87344, 2.02638, 2.19180, 2.37072, 2.56425, 2.77358, 3.00000}

In[49]:= eqfifteen = Table[N[oct^(n/15)], 6], {n, 0, 15}]
Out[49]:= {1.00000, 1.07599, 1.15775, 1.24573, 1.34039, 1.44225, 1.55185, 1.66977,
  1.79665, 1.93318, 2.08008, 2.23815, 2.40822, 2.59122, 2.78813, 3.00000}

In[50]:= eqsixteen = Table[N[oct^(n/16)], 6], {n, 0, 16}]
Out[50]:= {1.00000, 1.07108, 1.14720, 1.22874, 1.31607, 1.40961, 1.50980, 1.61711,
  1.73205, 1.85516, 1.98701, 2.12824, 2.27951, 2.44152, 2.61506, 2.80092, 3.00000}

In[51]:= eq17 = Table[N[oct^(n/17)], 6], {n, 0, 17}]
Out[51]:= {1.00000, 1.06676, 1.13797, 1.21394, 1.29498, 1.38143, 1.47365, 1.57203, 1.67698,
  1.78893, 1.90836, 2.03576, 2.17166, 2.31663, 2.47129, 2.63627, 2.81226, 3.00000}

In[52]:= eq18 = Table[N[oct^(n/18)], 6], {n, 0, 18}]
Out[52]:= {1.00000, 1.06294, 1.12983, 1.20094, 1.27652, 1.35686, 1.44225, 1.53302, 1.62950, 1.73205,
  1.84106, 1.95692, 2.08008, 2.21099, 2.35014, 2.49805, 2.65526, 2.82237, 3.00000}

In[53]:= eq19 = Table[N[oct^(n/19)], 6], {n, 0, 19}]
Out[53]:= {1.00000, 1.05953, 1.12260, 1.18942, 1.26022, 1.33524, 1.41472, 1.49893, 1.58816, 1.68269,
  1.78286, 1.88898, 2.00143, 2.12056, 2.24679, 2.38054, 2.52224, 2.67238, 2.83145, 3.00000}

In[54]:= eq20 = Table[N[oct^(n/20)], 6], {n, 0, 20}]
Out[54]:= {1.00000, 1.05647, 1.11612, 1.17915, 1.24573, 1.31607,
  1.39039, 1.46890, 1.55185, 1.63947, 1.73205, 1.82986, 1.93318,
  2.04234, 2.15767, 2.27951, 2.40822, 2.54421, 2.68788, 2.83965, 3.00000}

In[55]:= eq21 = Table[N[oct^(n/21)], 6], {n, 0, 21}]
Out[55]:= {1.00000, 1.05371, 1.11030, 1.16993, 1.23276, 1.29897,
  1.36874, 1.44225, 1.51971, 1.60133, 1.68733, 1.77795, 1.87344, 1.97406,
  2.08008, 2.19180, 2.30952, 2.43355, 2.56425, 2.70197, 2.84709, 3.00000}

In[56]:= eq22 = Table[N[oct^(n/22)], 6], {n, 0, 22}]
Out[56]:= {1.00000, 1.05120, 1.10503, 1.16161, 1.22109, 1.28362, 1.34935,
  1.41844, 1.49107, 1.56742, 1.64768, 1.73205, 1.82074, 1.91397, 2.01198,
  2.11500, 2.22330, 2.33714, 2.45681, 2.58261, 2.71485, 2.85387, 3.00000}

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In[57]:= eq23 = Table[N[oct^(n/23), 6], {n, 0, 23}]
Out[57]= {1.00000, 1.04892, 1.10024, 1.15407, 1.21054, 1.26976, 1.33188, 1.39705,
1.46540, 1.53709, 1.61229, 1.69117, 1.77392, 1.86070, 1.95174, 2.04723,
2.14739, 2.25245, 2.36265, 2.47824, 2.59949, 2.72667, 2.86007, 3.00000}

In[58]:= eqs24 = Table[N[oct^(n/24), 6], {n, 0, 24}]
Out[58]= {1.00000, 1.04684, 1.09587, 1.14720, 1.20094, 1.25719, 1.31607, 1.37772,
1.44225, 1.50980, 1.58052, 1.65455, 1.73205, 1.81318, 1.89811, 1.98701, 2.08008,
2.17751, 2.27951, 2.38628, 2.49805, 2.61506, 2.73754, 2.86577, 3.00000}

In[59]:= eqs25 = Table[N[oct^(n/25), 6], {n, 0, 25}]
Out[59]= {1.00000, 1.04492, 1.09187, 1.14092, 1.19217, 1.24573, 1.30169, 1.36017,
1.42128, 1.48513, 1.55185, 1.62156, 1.69441, 1.77053, 1.85007, 1.93318, 2.02003,
2.11078, 2.20560, 2.30469, 2.40822, 2.51641, 2.62946, 2.74759, 2.87102, 3.00000}

In[60]:= eqs26 = Table[N[oct^(n/26), 6], {n, 0, 26}]
Out[60]= {1.00000, 1.04316, 1.08818, 1.13515, 1.18414, 1.23525, 1.28856, 1.34417, 1.40219,
1.46271, 1.52584, 1.59169, 1.66039, 1.73205, 1.80681, 1.88479, 1.96613, 2.05099,
2.13951, 2.23185, 2.32818, 2.42866, 2.53348, 2.64283, 2.75689, 2.87588, 3.00000}

In[61]:= eqs26 = Table[N[oct^(n/26), 6], {n, 0, 26}]
Out[61]= {1.00000, 1.04316, 1.08818, 1.13515, 1.18414, 1.23525, 1.28856, 1.34417, 1.40219,
1.46271, 1.52584, 1.59169, 1.66039, 1.73205, 1.80681, 1.88479, 1.96613, 2.05099,
2.13951, 2.23185, 2.32818, 2.42866, 2.53348, 2.64283, 2.75689, 2.87588, 3.00000}

In[62]:= eqs27 = Table[N[oct^(n/27), 6], {n, 0, 27}]
Out[62]= {1.00000, 1.04153, 1.08478, 1.12983, 1.17675, 1.22562, 1.27652, 1.32953, 1.38474, 1.44225,
1.50214, 1.56453, 1.62950, 1.69717, 1.76765, 1.84106, 1.91751, 1.99715, 2.08008,
2.16647, 2.25644, 2.35014, 2.44774, 2.54939, 2.65526, 2.76553, 2.88038, 3.00000}

In[63]:= eqs28 = Table[N[oct^(n/28), 6], {n, 0, 28}]
Out[63]= {1.00000, 1.04002, 1.08163, 1.12492, 1.16993, 1.21675, 1.26544, 1.31607, 1.36874, 1.42351,
1.48047, 1.53972, 1.60133, 1.66541, 1.73205, 1.80136, 1.87344, 1.94841, 2.02638, 2.10747,
2.19180, 2.27951, 2.37072, 2.46559, 2.56425, 2.66687, 2.77358, 2.88457, 3.00000}

In[64]:= eqs29 = Table[N[oct^(n/29), 6], {n, 0, 29}]
Out[64]= {1.00000, 1.03861, 1.07871, 1.12036, 1.16362, 1.20854, 1.25521, 1.30367, 1.35400, 1.40628,
1.46058, 1.51697, 1.57554, 1.63637, 1.69955, 1.76517, 1.83332, 1.90411, 1.97763, 2.05398,
2.13329, 2.21565, 2.30120, 2.39005, 2.48233, 2.57817, 2.67771, 2.78110, 2.88848, 3.00000}

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In[65]:= eqs30 = Table[N[oct^(n/30), 6], {n, 0, 30}]

Out[65]:= {1.00000, 1.03730, 1.07599, 1.11612, 1.15775, 1.20094, 1.24573,
1.29220, 1.34039, 1.39039, 1.44225, 1.49604, 1.55185, 1.60973, 1.66977,
1.73205, 1.79665, 1.86367, 1.93318, 2.00529, 2.08008, 2.15767, 2.23815,
2.32163, 2.40822, 2.49805, 2.59122, 2.68788, 2.78813, 2.89213, 3.00000}

In[66]:= eqs31 = Table[N[oct^(n/31), 6], {n, 0, 31}]

Out[66]:= {1.00000, 1.03607, 1.07345, 1.11217, 1.15230, 1.19386, 1.23693, 1.28155,
1.32779, 1.37569, 1.42531, 1.47673, 1.53000, 1.58520, 1.64238, 1.70163,
1.76302, 1.82662, 1.89251, 1.96078, 2.03152, 2.10480, 2.18073, 2.25940,
2.34091, 2.42535, 2.51285, 2.60350, 2.69742, 2.79473, 2.89554, 3.00000}

In[67]:= eqs32 = Table[N[oct^(n/32), 6], {n, 0, 32}]

Out[67]:= {1.00000, 1.03493, 1.07108, 1.10849, 1.14720, 1.18727, 1.22874, 1.27166,
1.31607, 1.36204, 1.40961, 1.45885, 1.50980, 1.56254, 1.61711, 1.67360,
1.73205, 1.79255, 1.85516, 1.91995, 1.98701, 2.05642, 2.12824, 2.20258, 2.27951,
2.35913, 2.44152, 2.52680, 2.61506, 2.70639, 2.80092, 2.89875, 3.00000}

In[68]:= eqs33 = Table[N[oct^(n/33), 6], {n, 0, 33}]

Out[68]:= {1.00000, 1.03385, 1.06885, 1.10503, 1.14244, 1.18111, 1.22109, 1.26243,
1.30517, 1.34935, 1.39503, 1.44225, 1.49107, 1.54155, 1.59373, 1.64768, 1.70346,
1.76112, 1.82074, 1.88238, 1.94610, 2.01198, 2.08008, 2.15050, 2.22330, 2.29856,
2.37637, 2.45681, 2.53998, 2.62596, 2.71485, 2.80676, 2.90177, 3.00000}

In[69]:= eqs34 = Table[N[oct^(n/34), 6], {n, 0, 34}]

Out[69]:= {1.00000, 1.03284, 1.06676, 1.10179, 1.13797, 1.17534, 1.21394, 1.25381,
1.29498, 1.33751, 1.38143, 1.42680, 1.47365, 1.52205, 1.57203, 1.62366, 1.67698,
1.73205, 1.78893, 1.84768, 1.90836, 1.97103, 2.03576, 2.10261, 2.17166, 2.24298,
2.31663, 2.39271, 2.47129, 2.55244, 2.63627, 2.72284, 2.81226, 2.90461, 3.00000}

In[70]:= eqs35 = Table[N[oct^(n/35), 6], {n, 0, 35}]

Out[70]:= {1.00000, 1.03189, 1.06479, 1.09874, 1.13378, 1.16993, 1.20724, 1.24573, 1.28545,
1.32644, 1.36874, 1.41238, 1.45742, 1.50389, 1.55185, 1.60133, 1.65239, 1.70508,
1.75945, 1.81555, 1.87344, 1.93318, 1.99482, 2.05843, 2.12407, 2.19180, 2.26169,
2.33381, 2.40822, 2.48502, 2.56425, 2.64602, 2.73039, 2.81746, 2.90730, 3.00000}

In[71]:= eqs36 = Table[N[oct^(n/36), 6], {n, 0, 36}]

Out[71]:= {1.00000, 1.03099, 1.06294, 1.09587, 1.12983, 1.16484, 1.20094, 1.23815, 1.27652, 1.31607,
1.35686, 1.39890, 1.44225, 1.48694, 1.53302, 1.58052, 1.62950, 1.67999, 1.73205,
1.78572, 1.84106, 1.89811, 1.95692, 2.01756, 2.08008, 2.14454, 2.21099, 2.27951,
2.35014, 2.42297, 2.49805, 2.57546, 2.65526, 2.73754, 2.82237, 2.90983, 3.00000}

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In[72]:= eqs37 = Table[N[oct^(n/37), 6], {n, 0, 37}]
Out[72]= {1.00000, 1.03014, 1.06118, 1.09316, 1.12611, 1.16005, 1.19501, 1.23102, 1.26812, 1.30634,
1.34571, 1.38627, 1.42805, 1.47108, 1.51542, 1.56109, 1.60814, 1.65660, 1.70653, 1.75796,
1.81094, 1.86551, 1.92174, 1.97965, 2.03931, 2.10077, 2.16409, 2.22931, 2.29649,
2.36570, 2.43700, 2.51044, 2.58610, 2.66404, 2.74433, 2.82703, 2.91223, 3.00000}

In[73]:= eqs38 = Table[N[oct^(n/38), 6], {n, 0, 38}]
Out[73]= {1.00000, 1.02933, 1.05953, 1.09060, 1.12260, 1.15552, 1.18942, 1.22431, 1.26022, 1.29719,
1.33524, 1.37440, 1.41472, 1.45622, 1.49893, 1.54290, 1.58816, 1.63474, 1.68269, 1.73205,
1.78286, 1.83515, 1.88898, 1.94439, 2.00143, 2.06013, 2.12056, 2.18277, 2.24679, 2.31270,
2.38054, 2.45036, 2.52224, 2.59622, 2.67238, 2.75077, 2.83145, 2.91451, 3.00000}

In[74]:= eqs39 = Table[N[oct^(n/39), 6], {n, 0, 39}]
Out[74]= {1.00000, 1.02857, 1.05796, 1.08818, 1.11927, 1.15125, 1.18414, 1.21797, 1.25277, 1.28856,
1.32538, 1.36324, 1.40219, 1.44225, 1.48345, 1.52584, 1.56943, 1.61427, 1.66039, 1.70783,
1.75662, 1.80681, 1.85843, 1.91152, 1.96613, 2.02231, 2.08008, 2.13951, 2.20064, 2.26351,
2.32818, 2.39470, 2.46311, 2.53348, 2.60586, 2.68031, 2.75689, 2.83566, 2.91667, 3.00000}

In[75]:= eqs40 = Table[N[oct^(n/40), 6], {n, 0, 40}]
Out[75]= {1.00000, 1.02785, 1.05647, 1.08589, 1.11612, 1.14720, 1.17915, 1.21198,
1.24573, 1.28042, 1.31607, 1.35272, 1.39039, 1.42911, 1.46890, 1.50980,
1.55185, 1.59506, 1.63947, 1.68513, 1.73205, 1.78028, 1.82986, 1.88081,
1.93318, 1.98701, 2.04234, 2.09921, 2.15767, 2.21775, 2.27951, 2.34298, 2.40822,
2.47528, 2.54421, 2.61506, 2.68788, 2.76272, 2.83965, 2.91873, 3.00000}

In[76]:= eqs41 = Table[N[oct^(n/41), 6], {n, 0, 41}]
Out[76]= {1.00000, 1.02716, 1.05505, 1.08371, 1.11314, 1.14337, 1.17442, 1.20631,
1.23907, 1.27272, 1.30729, 1.34279, 1.37926, 1.41671, 1.45519, 1.49471,
1.53530, 1.57700, 1.61982, 1.66381, 1.70900, 1.75541, 1.80309, 1.85205, 1.90235,
1.95401, 2.00708, 2.06159, 2.11758, 2.17508, 2.23415, 2.29483, 2.35715, 2.42117,
2.48692, 2.55446, 2.62383, 2.69509, 2.76828, 2.84346, 2.92068, 3.00000}

In[77]:= eqs42 = Table[N[oct^(n/42), 6], {n, 0, 42}]
Out[77]= {1.00000, 1.02650, 1.05371, 1.08163, 1.11030, 1.13973, 1.16993, 1.20094,
1.23276, 1.26544, 1.29897, 1.33340, 1.36874, 1.40501, 1.44225, 1.48047, 1.51971,
1.55999, 1.60133, 1.64377, 1.68733, 1.73205, 1.77795, 1.82507, 1.87344, 1.92310,
1.97406, 2.02638, 2.08008, 2.13521, 2.19180, 2.24989, 2.30952, 2.37072, 2.43355,
2.49805, 2.56425, 2.63221, 2.70197, 2.77358, 2.84709, 2.92255, 3.00000}

In[78]:= eqs43 = Table[N[oct^(n/43), 6], {n, 0, 43}]
Out[78]= {1.00000, 1.02588, 1.05243, 1.07966, 1.10760, 1.13626, 1.16567, 1.19583,
1.22678, 1.25853, 1.29110, 1.32451, 1.35878, 1.39395, 1.43002, 1.46703, 1.50499,
1.54394, 1.58389, 1.62488, 1.66693, 1.71007, 1.75432, 1.79972, 1.84629, 1.89407,
1.94309, 1.99337, 2.04495, 2.09787, 2.15216, 2.20786, 2.26499, 2.32361, 2.38374,
2.44543, 2.50871, 2.57363, 2.64023, 2.70856, 2.77865, 2.85056, 2.92432, 3.00000}

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In[79]:= eqs44 = Table[N[oct^(n / 44), 6], {n, 0, 44}]
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Out[79]= {1.00000, 1.02528, 1.05120, 1.07778, 1.10503, 1.13297, 1.16161, 1.19098, 1.22109,  
1.25197, 1.28362, 1.31607, 1.34935, 1.38346, 1.41844, 1.45430, 1.49107, 1.52877,  
1.56742, 1.60705, 1.64768, 1.68934, 1.73205, 1.77584, 1.82074, 1.86677, 1.91397,  
1.96236, 2.01198, 2.06284, 2.11500, 2.16847, 2.22330, 2.27951, 2.33714, 2.39623,  
2.45681, 2.51893, 2.58261, 2.64791, 2.71485, 2.78349, 2.85387, 2.92602, 3.00000}
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