

MUSICAL NUMBERS FOR ALL OCTAVES

In[550]:=

Out[550]= FOR MUSICAL NUMBERS

Out[551]= ALL OCTAVES

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

In[552]:= **oct = 12**

Out[552]= 12

In[553]:= **eqtwo = Table[N[oct^(y/2)], {y, 1, 2}]**

Out[553]= {3.4641, 12.}

In[554]:= **eqthree = Table[N[oct^(y/3)], {y, 1, 3}]**

Out[554]= {2.28943, 5.24148, 12.}

In[555]:= **eqfour = Table[N[oct^(y/4)], {y, 1, 4}]**

Out[555]= {1.86121, 3.4641, 6.44742, 12.}

In[556]:= **eqfive = Table[N[oct^(y/5)], {y, 1, 5}]**

Out[556]= {1.64375, 2.70192, 4.44129, 7.30037, 12.}

In[557]:= **eqsix = Table[N[oct^(y/6)], {y, 1, 6}]**

Out[557]= {1.51309, 2.28943, 3.4641, 5.24148, 7.93081, 12.}

In[558]:= **eqseven = Table[N[oct^(y/7)], {y, 1, 7}]**

Out[558]= {1.42616, 2.03394, 2.90072, 4.1369, 5.89989, 8.41419, 12.}

In[559]:= **eqeight = Table[N[oct^(y/8)], {y, 1, 8}]**

Out[559]= {1.36426, 1.86121, 2.53918, 3.4641, 4.72594, 6.44742, 8.79597, 12.}

In[560]:= **eqnine = Table[N[oct^(y/9)], {y, 1, 9}]**

Out[560]= {1.31798, 1.73707, 2.28943, 3.01742, 3.9769, 5.24148, 6.90817, 9.10484, 12.}

In[561]:= **eqten = Table[N[oct^(y/10)], {y, 1, 10}]**

Out[561]= {1.28209, 1.64375, 2.10744, 2.70192, 3.4641, 4.44129, 5.69412, 7.30037, 9.35973, 12.}

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In[562]:= eqeleven = Table[N[oct^(y/11)], {y, 1, 11}]
Out[562]:= {1.25345, 1.57114, 1.96935, 2.46848,
           3.09412, 3.87833, 4.86129, 6.09339, 7.63777, 9.57357, 12.}

In[563]:= eqtwelve = Table[N[oct^(y/12)], {y, 1, 12}]
Out[563]:= {1.23008, 1.51309, 1.86121, 2.28943, 2.81617,
           3.4641, 4.26111, 5.24148, 6.44742, 7.93081, 9.7555, 12.}

In[564]:= eqthirteen = Table[N[oct^(n/13)], {n, 0, 13}]
Out[564]:= {1.00000, 1.21064, 1.46564, 1.77436, 2.14811, 2.60058,
           3.14835, 3.81151, 4.61436, 5.58632, 6.76300, 8.18754, 9.91214, 12.0000}

In[565]:= eqfourteen = Table[N[oct^(n/14)], {n, 0, 14}]
Out[565]:= {1.00000, 1.19422, 1.42616, 1.70315, 2.03394, 2.42897, 2.90072,
           3.46410, 4.13690, 4.94037, 5.89989, 7.04576, 8.41419, 10.0484, 12.0000}

In[566]:= eqfifteen = Table[N[oct^(n/15)], {n, 0, 15}]
Out[566]:= {1.00000, 1.18017, 1.39281, 1.64375, 1.93991, 2.28943, 2.70192, 3.18873,
           3.76325, 4.44129, 5.24148, 6.18585, 7.30037, 8.61570, 10.1680, 12.0000}

In[567]:= eqsixteen = Table[N[oct^(n/16)], {n, 0, 16}]
Out[567]:= {1.00000, 1.16802, 1.36426, 1.59348, 1.86121, 2.17392, 2.53918, 2.96580,
           3.46410, 4.04613, 4.72594, 5.51997, 6.44742, 7.53069, 8.79597, 10.2738, 12.0000}

In[568]:= eq17 = Table[N[oct^(n/17)], {n, 0, 17}]
Out[568]:= {1.00000, 1.15739, 1.33956, 1.55040, 1.79442, 2.07686, 2.40374, 2.78207, 3.21996,
           3.72676, 4.31333, 4.99222, 5.77797, 6.68738, 7.73994, 8.95816, 10.3681, 12.0000}

In[569]:= eq18 = Table[N[oct^(n/18)], {n, 0, 18}]
Out[569]:= {1.00000, 1.14803, 1.31798, 1.51309, 1.73707, 1.99422, 2.28943, 2.62834, 3.01742, 3.46410,
           3.97690, 4.56562, 5.24148, 6.01740, 6.90817, 7.93081, 9.10484, 10.4527, 12.0000}

In[570]:= eq19 = Table[N[oct^(n/19)], {n, 0, 19}]
Out[570]:= {1.00000, 1.13972, 1.29897, 1.48046, 1.68731, 1.92307, 2.19177, 2.49800, 2.84703, 3.24482,
           3.69820, 4.21492, 4.80384, 5.47504, 6.24002, 7.11189, 8.10558, 9.23811, 10.5289, 12.0000}

In[571]:= eq20 = Table[N[oct^(n/20)], {n, 0, 20}]
Out[571]:= {1.00000, 1.13229, 1.28209, 1.45170, 1.64375, 1.86121,
           2.10744, 2.38624, 2.70192, 3.05937, 3.46410, 3.92238, 4.44129,
           5.02884, 5.69412, 6.44742, 7.30037, 8.26616, 9.35973, 10.5980, 12.0000}

In[572]:= eq21 = Table[N[oct^(n/21)], {n, 0, 21}]
Out[572]:= {1.00000, 1.12561, 1.26701, 1.42616, 1.60531, 1.80696,
           2.03394, 2.28943, 2.57701, 2.90072, 3.26510, 3.67524, 4.13690, 4.65655,
           5.24148, 5.89989, 6.64100, 7.47520, 8.41419, 9.47114, 10.6608, 12.0000}

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In[573]:= **eq22 = Table**[N[oct^(n/22), 6], {n, 0, 22}]

Out[573]:= {1.00000, 1.11958, 1.25345, 1.40333, 1.57114, 1.75901, 1.96935,
2.20483, 2.46848, 2.76365, 3.09412, 3.46410, 3.87833, 4.34208, 4.86129,
5.44259, 6.09339, 6.82202, 7.63777, 8.55106, 9.57357, 10.7183, 12.0000}

In[574]:= **eq23 = Table**[N[oct^(n/23), 6], {n, 0, 23}]

Out[574]:= {1.00000, 1.11409, 1.24120, 1.38281, 1.54058, 1.71635, 1.91217, 2.13033,
2.37338, 2.64416, 2.94584, 3.28194, 3.65638, 4.07354, 4.53830, 5.05608,
5.63294, 6.27561, 6.99160, 7.78928, 8.67798, 9.66806, 10.7711, 12.0000}

In[575]:= **eqs24 = Table**[N[oct^(n/24), 6], {n, 0, 24}]

Out[575]:= {1.00000, 1.10909, 1.23008, 1.36426, 1.51309, 1.67814, 1.86121, 2.06424,
2.28943, 2.53918, 2.81617, 3.12338, 3.46410, 3.84199, 4.26111, 4.72594, 5.24148,
5.81326, 6.44742, 7.15075, 7.93081, 8.79597, 9.75550, 10.8197, 12.0000}

In[576]:= **eqs25 = Table**[N[oct^(n/25), 6], {n, 0, 25}]

Out[576]:= {1.00000, 1.10450, 1.21993, 1.34742, 1.48823, 1.64375, 1.81553, 2.00526,
2.21482, 2.44627, 2.70192, 2.98428, 3.29615, 3.64061, 4.02107, 4.44129, 4.90542,
5.41805, 5.98426, 6.60964, 7.30037, 8.06329, 8.90593, 9.83664, 10.8646, 12.0000}

In[577]:= **eqs26 = Table**[N[oct^(n/26), 6], {n, 0, 26}]

Out[577]:= {1.00000, 1.10029, 1.21064, 1.33205, 1.46564, 1.61263, 1.77436, 1.95231, 2.14811,
2.36354, 2.60058, 2.86139, 3.14835, 3.46410, 3.81151, 4.19377, 4.61436, 5.07713,
5.58632, 6.14656, 6.76300, 7.44126, 8.18754, 9.00866, 9.91214, 10.9062, 12.0000}

In[578]:= **eqs26 = Table**[N[oct^(n/26), 6], {n, 0, 26}]

Out[578]:= {1.00000, 1.10029, 1.21064, 1.33205, 1.46564, 1.61263, 1.77436, 1.95231, 2.14811,
2.36354, 2.60058, 2.86139, 3.14835, 3.46410, 3.81151, 4.19377, 4.61436, 5.07713,
5.58632, 6.14656, 6.76300, 7.44126, 8.18754, 9.00866, 9.91214, 10.9062, 12.0000}

In[579]:= **eqs27 = Table**[N[oct^(n/27), 6], {n, 0, 27}]

Out[579]:= {1.00000, 1.09640, 1.20210, 1.31798, 1.44504, 1.58434, 1.73707, 1.90453, 2.08813, 2.28943,
2.51013, 2.75211, 3.01742, 3.30831, 3.62723, 3.97690, 4.36028, 4.78062, 5.24148,
5.74677, 6.30077, 6.90817, 7.57413, 8.30429, 9.10484, 9.98256, 10.9449, 12.0000}

In[580]:= **eqs28 = Table**[N[oct^(n/28), 6], {n, 0, 28}]

Out[580]:= {1.00000, 1.09280, 1.19422, 1.30505, 1.42616, 1.55851, 1.70315, 1.86121, 2.03394, 2.22269,
2.42897, 2.65439, 2.90072, 3.16992, 3.46410, 3.78558, 4.13690, 4.52082, 4.94037, 5.39885,
5.89989, 6.44742, 7.04576, 7.69964, 8.41419, 9.19506, 10.0484, 10.9809, 12.0000}

In[581]:= **eqs29 = Table**[N[oct^(n/29), 6], {n, 0, 29}]

Out[581]:= {1.00000, 1.08946, 1.18693, 1.29312, 1.40881, 1.53485, 1.67216, 1.82176, 1.98475, 2.16231,
2.35576, 2.56652, 2.79613, 3.04629, 3.31882, 3.61574, 3.93922, 4.29164, 4.67559, 5.09389,
5.54962, 6.04611, 6.58702, 7.17633, 7.81836, 8.51782, 9.27987, 10.1101, 11.0146, 12.0000}

In[582]:= eqs30 = Table[N[oct^(n/30)], 6], {n, 0, 30}]

Out[582]:= {1.00000, 1.08636, 1.18017, 1.28209, 1.39281, 1.51309, 1.64375,
1.78570, 1.93991, 2.10744, 2.28943, 2.48714, 2.70192, 2.93525, 3.18873,
3.46410, 3.76325, 4.08824, 4.44129, 4.82482, 5.24148, 5.69412, 6.18585,
6.72005, 7.30037, 7.93081, 8.61570, 9.35973, 10.1680, 11.0461, 12.0000}

In[583]:= eqs31 = Table[N[oct^(n/31)], 6], {n, 0, 31}]

Out[583]:= {1.00000, 1.08346, 1.17388, 1.27185, 1.37800, 1.49301, 1.61761, 1.75261,
1.89888, 2.05736, 2.22907, 2.41510, 2.61666, 2.83504, 3.07165, 3.32801,
3.60576, 3.90669, 4.23274, 4.58600, 4.96874, 5.38342, 5.83271, 6.31950,
6.84692, 7.41835, 8.03748, 8.70827, 9.43505, 10.2225, 11.0756, 12.0000}

In[584]:= eqs32 = Table[N[oct^(n/32)], 6], {n, 0, 32}]

Out[584]:= {1.00000, 1.08075, 1.16802, 1.26233, 1.36426, 1.47442, 1.59348, 1.72215,
1.86121, 2.01150, 2.17392, 2.34946, 2.53918, 2.74421, 2.96580, 3.20528,
3.46410, 3.74382, 4.04613, 4.37284, 4.72594, 5.10755, 5.51997, 5.96570, 6.44742,
6.96804, 7.53069, 8.13878, 8.79597, 9.50622, 10.2738, 11.1034, 12.0000}

In[585]:= eqs33 = Table[N[oct^(n/33)], 6], {n, 0, 33}]

Out[585]:= {1.00000, 1.07821, 1.16253, 1.25345, 1.35148, 1.45718, 1.57114, 1.69401,
1.82650, 1.96935, 2.12336, 2.28943, 2.46848, 2.66153, 2.86969, 3.09412, 3.33610,
3.59701, 3.87833, 4.18164, 4.50868, 4.86129, 5.24148, 5.65141, 6.09339, 6.56994,
7.08376, 7.63777, 8.23510, 8.87915, 9.57357, 10.3223, 11.1296, 12.0000}

In[586]:= eqs34 = Table[N[oct^(n/34)], 6], {n, 0, 34}]

Out[586]:= {1.00000, 1.07582, 1.15739, 1.24515, 1.33956, 1.44113, 1.55040, 1.66796,
1.79442, 1.93048, 2.07686, 2.23433, 2.40374, 2.58600, 2.78207, 2.99302, 3.21996,
3.46410, 3.72676, 4.00933, 4.31333, 4.64038, 4.99222, 5.37074, 5.77797, 6.21607,
6.68738, 7.19444, 7.73994, 8.32680, 8.95816, 9.63739, 10.3681, 11.1543, 12.0000}

In[587]:= eqs35 = Table[N[oct^(n/35)], 6], {n, 0, 35}]

Out[587]:= {1.00000, 1.07358, 1.15257, 1.23737, 1.32842, 1.42616, 1.53110, 1.64375, 1.76470,
1.89454, 2.03394, 2.18359, 2.34426, 2.51674, 2.70192, 2.90072, 3.11415, 3.34329,
3.58928, 3.85337, 4.13690, 4.44129, 4.76807, 5.11890, 5.49554, 5.89989, 6.33399,
6.80004, 7.30037, 7.83752, 8.41419, 9.03330, 9.69795, 10.4115, 11.1776, 12.0000}

In[588]:= eqs36 = Table[N[oct^(n/36)], 6], {n, 0, 36}]

Out[588]:= {1.00000, 1.07146, 1.14803, 1.23008, 1.31798, 1.41217, 1.51309, 1.62122, 1.73707, 1.86121,
1.99422, 2.13673, 2.28943, 2.45304, 2.62834, 2.81617, 3.01742, 3.23306, 3.46410,
3.71166, 3.97690, 4.26111, 4.56562, 4.89189, 5.24148, 5.61606, 6.01740, 6.44742,
6.90817, 7.40185, 7.93081, 8.49757, 9.10484, 9.75550, 10.4527, 11.1996, 12.0000}

In[589]:= eqs37 = Table[N[oct^(n/37), 6], {n, 0, 37}]

Out[589]= {1.00000, 1.06947, 1.14376, 1.22321, 1.30818, 1.39906, 1.49624, 1.60018, 1.71134, 1.83022,
1.95736, 2.09333, 2.23875, 2.39426, 2.56058, 2.73846, 2.92869, 3.13213, 3.34971, 3.58240,
3.83126, 4.09740, 4.38203, 4.68643, 5.01198, 5.36014, 5.73249, 6.13071, 6.55659,
7.01205, 7.49915, 8.02008, 8.57721, 9.17303, 9.81025, 10.4917, 11.2206, 12.0000}

In[590]:= eqs38 = Table[N[oct^(n/38), 6], {n, 0, 38}]

Out[590]= {1.00000, 1.06758, 1.13972, 1.21674, 1.29897, 1.38675, 1.48046, 1.58051, 1.68731, 1.80134,
1.92307, 2.05303, 2.19177, 2.33988, 2.49800, 2.66681, 2.84703, 3.03943, 3.24482, 3.46410,
3.69820, 3.94811, 4.21492, 4.49975, 4.80384, 5.12847, 5.47504, 5.84503, 6.24002, 6.66171,
7.11189, 7.59250, 8.10558, 8.65334, 9.23811, 9.86240, 10.5289, 11.2404, 12.0000}

In[591]:= eqs39 = Table[N[oct^(n/39), 6], {n, 0, 39}]

Out[591]= {1.00000, 1.06579, 1.13591, 1.21064, 1.29028, 1.37517, 1.46564, 1.56207, 1.66483, 1.77436,
1.89109, 2.01551, 2.14811, 2.28943, 2.44005, 2.60058, 2.77167, 2.95401, 3.14835, 3.35548,
3.57624, 3.81151, 4.06227, 4.32952, 4.61436, 4.91794, 5.24148, 5.58632, 5.95383, 6.34553,
6.76300, 7.20793, 7.68214, 8.18754, 8.72619, 9.30028, 9.91214, 10.5642, 11.2593, 12.0000}

In[592]:= eqs40 = Table[N[oct^(n/40), 6], {n, 0, 40}]

Out[592]= {1.00000, 1.06409, 1.13229, 1.20487, 1.28209, 1.36426, 1.45170, 1.54474,
1.64375, 1.74910, 1.86121, 1.98050, 2.10744, 2.24251, 2.38624, 2.53918,
2.70192, 2.87509, 3.05937, 3.25545, 3.46410, 3.68613, 3.92238, 4.17378,
4.44129, 4.72594, 5.02884, 5.35115, 5.69412, 6.05908, 6.44742, 6.86065, 7.30037,
7.76827, 8.26616, 8.79597, 9.35973, 9.95962, 10.5980, 11.2772, 12.0000}

In[593]:= eqs41 = Table[N[oct^(n/41), 6], {n, 0, 41}]

Out[593]= {1.00000, 1.06248, 1.12887, 1.19940, 1.27434, 1.35397, 1.43856, 1.52845,
1.62395, 1.72541, 1.83322, 1.94776, 2.06946, 2.19877, 2.33615, 2.48212,
2.63721, 2.80198, 2.97706, 3.16307, 3.36070, 3.57068, 3.79379, 4.03083, 4.28268,
4.55027, 4.83458, 5.13665, 5.45760, 5.79860, 6.16091, 6.54585, 6.95485, 7.38940,
7.85111, 8.34166, 8.86286, 9.41662, 10.0050, 10.6301, 11.2943, 12.0000}

In[594]:= eqs42 = Table[N[oct^(n/42), 6], {n, 0, 42}]

Out[594]= {1.00000, 1.06095, 1.12561, 1.19422, 1.26701, 1.34423, 1.42616, 1.51309,
1.60531, 1.70315, 1.80696, 1.91709, 2.03394, 2.15790, 2.28943, 2.42897, 2.57701,
2.73408, 2.90072, 3.07752, 3.26510, 3.46410, 3.67524, 3.89924, 4.13690, 4.38904,
4.65655, 4.94037, 5.24148, 5.56095, 5.89989, 6.25948, 6.64100, 7.04576, 7.47520,
7.93081, 8.41419, 8.92704, 9.47114, 10.0484, 10.6608, 11.3106, 12.0000}

In[595]:= eqs43 = Table[N[oct^(n/43), 6], {n, 0, 43}]

Out[595]= {1.00000, 1.05949, 1.12252, 1.18930, 1.26005, 1.33502, 1.41444, 1.49858,
1.58773, 1.68219, 1.78227, 1.88829, 2.00063, 2.11965, 2.24575, 2.37935, 2.52090,
2.67087, 2.82976, 2.99811, 3.17647, 3.36544, 3.56565, 3.77778, 4.00252, 4.24064,
4.49291, 4.76020, 5.04339, 5.34343, 5.66131, 5.99811, 6.35494, 6.73300, 7.13356,
7.55794, 8.00757, 8.48394, 8.98866, 9.52341, 10.0900, 10.6902, 11.3262, 12.0000}

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In[596]:= eqs44 = Table[N[oct^(n / 44), 6], {n, 0, 44}]
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Out[596]= {1.00000, 1.05810, 1.11958, 1.18462, 1.25345, 1.32628, 1.40333, 1.48487, 1.57114,  
1.66242, 1.75901, 1.86121, 1.96935, 2.08377, 2.20483, 2.33294, 2.46848, 2.61190,  
2.76365, 2.92422, 3.09412, 3.27389, 3.46410, 3.66537, 3.87833, 4.10366, 4.34208,  
4.59436, 4.86129, 5.14373, 5.44259, 5.75880, 6.09339, 6.44742, 6.82202, 7.21838,  
7.63777, 8.08152, 8.55106, 9.04788, 9.57357, 10.1298, 10.7183, 11.3411, 12.0000}
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