

MUSICAL NUMBERS FOR ALL OCTAVES

In[221]=

Out[221]= FOR MUSICAL NUMBERS

Out[222]= ALL OCTAVES

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

In[223]= **oct = 5**

Out[223]= 5

In[224]= **eqtwo = Table[N[oct^(y/2)], {y, 1, 2}]**

Out[224]= {2.23607, 5.}

In[225]= **eqthree = Table[N[oct^(y/3)], {y, 1, 3}]**

Out[225]= {1.70998, 2.92402, 5.}

In[226]= **eqfour = Table[N[oct^(y/4)], {y, 1, 4}]**

Out[226]= {1.49535, 2.23607, 3.3437, 5.}

In[227]= **eqfive = Table[N[oct^(y/5)], {y, 1, 5}]**

Out[227]= {1.37973, 1.90365, 2.62653, 3.6239, 5.}

In[228]= **eqsix = Table[N[oct^(y/6)], {y, 1, 6}]**

Out[228]= {1.30766, 1.70998, 2.23607, 2.92402, 3.82362, 5.}

In[229]= **eqseven = Table[N[oct^(y/7)], {y, 1, 7}]**

Out[229]= {1.2585, 1.58382, 1.99324, 2.50848, 3.15693, 3.97299, 5.}

In[230]= **eqeight = Table[N[oct^(y/8)], {y, 1, 8}]**

Out[230]= {1.22284, 1.49535, 1.82858, 2.23607, 2.73436, 3.3437, 4.08883, 5.}

In[231]= **eqnine = Table[N[oct^(y/9)], {y, 1, 9}]**

Out[231]= {1.19581, 1.42997, 1.70998, 2.04481, 2.44521, 2.92402, 3.49658, 4.18126, 5.}

In[232]= **eqten = Table[N[oct^(y/10)], {y, 1, 10}]**

Out[232]= {1.17462, 1.37973, 1.62066, 1.90365, 2.23607, 2.62653, 3.08517, 3.6239, 4.2567, 5.}

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In[233]:= eqeleven = Table[N[oct^(y/11)], {y, 1, 11}]
Out[233]= {1.15756, 1.33994, 1.55106, 1.79544,
          2.07833, 2.40578, 2.78483, 3.22361, 3.73151, 4.31944, 5.}

In[234]:= eqtwelve = Table[N[oct^(y/12)], {y, 1, 12}]
Out[234]= {1.14353, 1.30766, 1.49535, 1.70998, 1.95541,
          2.23607, 2.55701, 2.92402, 3.3437, 3.82362, 4.37243, 5.}

In[235]:= eqthirteen = Table[N[oct^(n/13)], {n, 0, 13}]
Out[235]= {1.00000, 1.13179, 1.28095, 1.44978, 1.64085, 1.85710,
          2.10185, 2.37886, 2.69237, 3.04721, 3.44881, 3.90334, 4.41777, 5.00000}

In[236]:= eqfourteen = Table[N[oct^(n/14)], {n, 0, 14}]
Out[236]= {1.00000, 1.12183, 1.25850, 1.41182, 1.58382, 1.77677, 1.99324,
          2.23607, 2.50848, 2.81409, 3.15693, 3.54153, 3.97299, 4.45701, 5.00000}

In[237]:= eqfifteen = Table[N[oct^(n/15)], {n, 0, 15}]
Out[237]= {1.00000, 1.11326, 1.23936, 1.37973, 1.53600, 1.70998, 1.90365, 2.11927,
          2.35930, 2.62653, 2.92402, 3.25520, 3.62390, 4.03435, 4.49130, 5.00000}

In[238]:= eqsixteen = Table[N[oct^(n/16)], {n, 0, 16}]
Out[238]= {1.00000, 1.10582, 1.22284, 1.35225, 1.49535, 1.65359, 1.82858, 2.02208,
          2.23607, 2.47270, 2.73436, 3.02372, 3.34370, 3.69754, 4.08883, 4.52152, 5.00000}

In[239]:= eq17 = Table[N[oct^(n/17)], {n, 0, 17}]
Out[239]= {1.00000, 1.09930, 1.20846, 1.32846, 1.46037, 1.60539, 1.76480, 1.94004, 2.13269,
          2.34446, 2.57726, 2.83318, 3.11452, 3.42378, 3.76376, 4.13750, 4.54835, 5.00000}

In[240]:= eq18 = Table[N[oct^(n/18)], {n, 0, 18}]
Out[240]= {1.00000, 1.09353, 1.19581, 1.30766, 1.42997, 1.56372, 1.70998, 1.86991, 2.04481, 2.23607,
          2.44521, 2.67392, 2.92402, 3.19751, 3.49658, 3.82362, 4.18126, 4.57234, 5.00000}

In[241]:= eq19 = Table[N[oct^(n/19)], {n, 0, 19}]
Out[241]= {1.00000, 1.08840, 1.18461, 1.28933, 1.40330, 1.52735, 1.66237, 1.80932, 1.96926, 2.14334,
          2.33281, 2.53902, 2.76347, 3.00776, 3.27364, 3.56302, 3.87799, 4.22079, 4.59391, 5.00000}

In[242]:= eq20 = Table[N[oct^(n/20)], {n, 0, 20}]
Out[242]= {1.00000, 1.08380, 1.17462, 1.27305, 1.37973, 1.49535,
          1.62066, 1.75647, 1.90365, 2.06318, 2.23607, 2.42345, 2.62653,
          2.84663, 3.08517, 3.34370, 3.62390, 3.92758, 4.25670, 4.61340, 5.00000}

In[243]:= eq21 = Table[N[oct^(n/21)], {n, 0, 21}]
Out[243]= {1.00000, 1.07965, 1.16565, 1.25850, 1.35874, 1.46697,
          1.58382, 1.70998, 1.84618, 1.99324, 2.15200, 2.32342, 2.50848, 2.70829,
          2.92402, 3.15693, 3.40838, 3.67987, 3.97299, 4.28945, 4.63112, 5.00000}

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In[244]:= **eq22 = Table**[N[oct^(n/22), 6], {n, 0, 22}]

Out[244]:= {1.00000, 1.07590, 1.15756, 1.24541, 1.33994, 1.44164, 1.55106,
1.66878, 1.79544, 1.93171, 2.07833, 2.23607, 2.40578, 2.58838, 2.78483,
2.99620, 3.22361, 3.46827, 3.73151, 4.01473, 4.31944, 4.64728, 5.00000}

In[245]:= **eq23 = Table**[N[oct^(n/23), 6], {n, 0, 23}]

Out[245]:= {1.00000, 1.07248, 1.15022, 1.23359, 1.32300, 1.41889, 1.52174, 1.63204,
1.75033, 1.87720, 2.01326, 2.15919, 2.31569, 2.48353, 2.66354, 2.85660,
3.06366, 3.28572, 3.52387, 3.77929, 4.05322, 4.34700, 4.66208, 5.00000}

In[246]:= **eqs24 = Table**[N[oct^(n/24), 6], {n, 0, 24}]

Out[246]:= {1.00000, 1.06936, 1.14353, 1.22284, 1.30766, 1.39836, 1.49535, 1.59907,
1.70998, 1.82858, 1.95541, 2.09103, 2.23607, 2.39116, 2.55701, 2.73436, 2.92402,
3.12683, 3.34370, 3.57562, 3.82362, 4.08883, 4.37243, 4.67570, 5.00000}

In[247]:= **eqs25 = Table**[N[oct^(n/25), 6], {n, 0, 25}]

Out[247]:= {1.00000, 1.06649, 1.13741, 1.21304, 1.29370, 1.37973, 1.47147, 1.56932,
1.67367, 1.78496, 1.90365, 2.03024, 2.16524, 2.30922, 2.46277, 2.62653, 2.80118,
2.98744, 3.18609, 3.39795, 3.62390, 3.86487, 4.12186, 4.39595, 4.68825, 5.00000}

In[248]:= **eqs26 = Table**[N[oct^(n/26), 6], {n, 0, 26}]

Out[248]:= {1.00000, 1.06386, 1.13179, 1.20407, 1.28095, 1.36275, 1.44978, 1.54235, 1.64085,
1.74563, 1.85710, 1.97569, 2.10185, 2.23607, 2.37886, 2.53077, 2.69237, 2.86430,
3.04721, 3.24180, 3.44881, 3.66904, 3.90334, 4.15260, 4.41777, 4.69988, 5.00000}

In[249]:= **eqs26 = Table**[N[oct^(n/26), 6], {n, 0, 26}]

Out[249]:= {1.00000, 1.06386, 1.13179, 1.20407, 1.28095, 1.36275, 1.44978, 1.54235, 1.64085,
1.74563, 1.85710, 1.97569, 2.10185, 2.23607, 2.37886, 2.53077, 2.69237, 2.86430,
3.04721, 3.24180, 3.44881, 3.66904, 3.90334, 4.15260, 4.41777, 4.69988, 5.00000}

In[250]:= **eqs27 = Table**[N[oct^(n/27), 6], {n, 0, 27}]

Out[250]:= {1.00000, 1.06142, 1.12662, 1.19581, 1.26926, 1.34722, 1.42997, 1.51780, 1.61102, 1.70998,
1.81500, 1.92648, 2.04481, 2.17041, 2.30372, 2.44521, 2.59540, 2.75481, 2.92402,
3.10361, 3.29424, 3.49658, 3.71134, 3.93930, 4.18126, 4.43807, 4.71067, 5.00000}

In[251]:= **eqs28 = Table**[N[oct^(n/28), 6], {n, 0, 28}]

Out[251]:= {1.00000, 1.05916, 1.12183, 1.18820, 1.25850, 1.33296, 1.41182, 1.49535, 1.58382, 1.67752,
1.77677, 1.88189, 1.99324, 2.11116, 2.23607, 2.36836, 2.50848, 2.65690, 2.81409, 2.98058,
3.15693, 3.34370, 3.54153, 3.75106, 3.97299, 4.20804, 4.45701, 4.72070, 5.00000}

In[252]:= **eqs29 = Table**[N[oct^(n/29), 6], {n, 0, 29}]

Out[252]:= {1.00000, 1.05707, 1.11739, 1.18116, 1.24856, 1.31981, 1.39513, 1.47474, 1.55890, 1.64787,
1.74190, 1.84131, 1.94639, 2.05746, 2.17487, 2.29899, 2.43018, 2.56886, 2.71546, 2.87042,
3.03423, 3.20738, 3.39042, 3.58390, 3.78842, 4.00461, 4.23314, 4.47471, 4.73007, 5.00000}

In[253]:= eqs30 = Table[N[oct^(n/30), 6], {n, 0, 30}]

Out[253]= {1.00000, 1.05511, 1.11326, 1.17462, 1.23936, 1.30766, 1.37973,
1.45577, 1.53600, 1.62066, 1.70998, 1.80422, 1.90365, 2.00857, 2.11927,
2.23607, 2.35930, 2.48933, 2.62653, 2.77128, 2.92402, 3.08517, 3.25520,
3.43461, 3.62390, 3.82362, 4.03435, 4.25670, 4.49130, 4.73883, 5.00000}

In[254]:= eqs31 = Table[N[oct^(n/31), 6], {n, 0, 31}]

Out[254]= {1.00000, 1.05329, 1.10942, 1.16854, 1.23081, 1.29639, 1.36548, 1.43824,
1.51488, 1.59561, 1.68064, 1.77020, 1.86453, 1.96389, 2.06854, 2.17877,
2.29487, 2.41716, 2.54597, 2.68164, 2.82454, 2.97506, 3.13360, 3.30058,
3.47647, 3.66172, 3.85685, 4.06238, 4.27886, 4.50687, 4.74704, 5.00000}

In[255]:= eqs32 = Table[N[oct^(n/32), 6], {n, 0, 32}]

Out[255]= {1.00000, 1.05158, 1.10582, 1.16286, 1.22284, 1.28592, 1.35225, 1.42200,
1.49535, 1.57248, 1.65359, 1.73889, 1.82858, 1.92290, 2.02208, 2.12639,
2.23607, 2.35141, 2.47270, 2.60024, 2.73436, 2.87541, 3.02372, 3.17969, 3.34370,
3.51617, 3.69754, 3.88827, 4.08883, 4.29973, 4.52152, 4.75474, 5.00000}

In[256]:= eqs33 = Table[N[oct^(n/33), 6], {n, 0, 33}]

Out[256]= {1.00000, 1.04998, 1.10246, 1.15756, 1.21541, 1.27616, 1.33994, 1.40691,
1.47723, 1.55106, 1.62858, 1.70998, 1.79544, 1.88518, 1.97940, 2.07833, 2.18220,
2.29127, 2.40578, 2.52602, 2.65227, 2.78483, 2.92402, 3.07016, 3.22361, 3.38472,
3.55389, 3.73151, 3.91801, 4.11383, 4.31944, 4.53532, 4.76200, 5.00000}

In[257]:= eqs34 = Table[N[oct^(n/34), 6], {n, 0, 34}]

Out[257]= {1.00000, 1.04847, 1.09930, 1.15259, 1.20846, 1.26704, 1.32846, 1.39285,
1.46037, 1.53116, 1.60539, 1.68321, 1.76480, 1.85035, 1.94004, 2.03409, 2.13269,
2.23607, 2.34446, 2.45811, 2.57726, 2.70220, 2.83318, 2.97052, 3.11452, 3.26549,
3.42378, 3.58975, 3.76376, 3.94621, 4.13750, 4.33807, 4.54835, 4.76883, 5.00000}

In[258]:= eqs35 = Table[N[oct^(n/35), 6], {n, 0, 35}]

Out[258]= {1.00000, 1.04706, 1.09633, 1.14792, 1.20194, 1.25850, 1.31772, 1.37973, 1.44466,
1.51264, 1.58382, 1.65835, 1.73639, 1.81810, 1.90365, 1.99324, 2.08703, 2.18524,
2.28808, 2.39575, 2.50848, 2.62653, 2.75013, 2.87954, 3.01504, 3.15693, 3.30548,
3.46103, 3.62390, 3.79443, 3.97299, 4.15995, 4.35570, 4.56067, 4.77529, 5.00000}

In[259]:= eqs36 = Table[N[oct^(n/36), 6], {n, 0, 36}]

Out[259]= {1.00000, 1.04572, 1.09353, 1.14353, 1.19581, 1.25049, 1.30766, 1.36745, 1.42997, 1.49535,
1.56372, 1.63521, 1.70998, 1.78816, 1.86991, 1.95541, 2.04481, 2.13830, 2.23607,
2.33830, 2.44521, 2.55701, 2.67392, 2.79617, 2.92402, 3.05771, 3.19751, 3.34370,
3.49658, 3.65645, 3.82362, 3.99844, 4.18126, 4.37243, 4.57234, 4.78139, 5.00000}

In[260]:= **eqs37 = Table[N[oct^(n/37), 6], {n, 0, 37}]**

Out[260]:= {1.00000, 1.04446, 1.09089, 1.13939, 1.19005, 1.24296, 1.29821, 1.35593, 1.41621, 1.47918,
1.54494, 1.61362, 1.68536, 1.76029, 1.83855, 1.92029, 2.00566, 2.09483, 2.18796, 2.28523,
2.38683, 2.49295, 2.60378, 2.71954, 2.84044, 2.96672, 3.09862, 3.23638, 3.38026,
3.53054, 3.68750, 3.85144, 4.02267, 4.20151, 4.38830, 4.58340, 4.78717, 5.00000}

In[261]:= **eqs38 = Table[N[oct^(n/38), 6], {n, 0, 38}]**

Out[261]:= {1.00000, 1.04326, 1.08840, 1.13549, 1.18461, 1.23586, 1.28933, 1.34511, 1.40330, 1.46402,
1.52735, 1.59343, 1.66237, 1.73429, 1.80932, 1.88760, 1.96926, 2.05446, 2.14334, 2.23607,
2.33281, 2.43373, 2.53902, 2.64887, 2.76347, 2.88303, 3.00776, 3.13788, 3.27364, 3.41527,
3.56302, 3.71717, 3.87799, 4.04576, 4.22079, 4.40340, 4.59391, 4.79265, 5.00000}

In[262]:= **eqs39 = Table[N[oct^(n/39), 6], {n, 0, 39}]**

Out[262]:= {1.00000, 1.04213, 1.08604, 1.13179, 1.17948, 1.22917, 1.28095, 1.33492, 1.39116, 1.44978,
1.51086, 1.57451, 1.64085, 1.70998, 1.78202, 1.85710, 1.93534, 2.01688, 2.10185, 2.19040,
2.28269, 2.37886, 2.47908, 2.58353, 2.69237, 2.80581, 2.92402, 3.04721, 3.17559, 3.30938,
3.44881, 3.59411, 3.74553, 3.90334, 4.06779, 4.23917, 4.41777, 4.60389, 4.79786, 5.00000}

In[263]:= **eqs40 = Table[N[oct^(n/40), 6], {n, 0, 40}]**

Out[263]:= {1.00000, 1.04106, 1.08380, 1.12830, 1.17462, 1.22284, 1.27305, 1.32532,
1.37973, 1.43638, 1.49535, 1.55674, 1.62066, 1.68719, 1.75647, 1.82858,
1.90365, 1.98181, 2.06318, 2.14788, 2.23607, 2.32787, 2.42345, 2.52294,
2.62653, 2.73436, 2.84663, 2.96350, 3.08517, 3.21184, 3.34370, 3.48098, 3.62390,
3.77268, 3.92758, 4.08883, 4.25670, 4.43146, 4.61340, 4.80281, 5.00000}

In[264]:= **eqs41 = Table[N[oct^(n/41), 6], {n, 0, 41}]**

Out[264]:= {1.00000, 1.04004, 1.08167, 1.12498, 1.17002, 1.21686, 1.26558, 1.31624,
1.36894, 1.42375, 1.48075, 1.54003, 1.60168, 1.66581, 1.73250, 1.80186,
1.87400, 1.94902, 2.02705, 2.10821, 2.19261, 2.28039, 2.37169, 2.46664, 2.56539,
2.66809, 2.77491, 2.88601, 3.00155, 3.12172, 3.24669, 3.37668, 3.51186, 3.65246,
3.79869, 3.95077, 4.10894, 4.27344, 4.44453, 4.62247, 4.80753, 5.00000}

In[265]:= **eqs42 = Table[N[oct^(n/42), 6], {n, 0, 42}]**

Out[265]:= {1.00000, 1.03906, 1.07965, 1.12183, 1.16565, 1.21119, 1.25850, 1.30766,
1.35874, 1.41182, 1.46697, 1.52428, 1.58382, 1.64569, 1.70998, 1.77677, 1.84618,
1.91830, 1.99324, 2.07110, 2.15200, 2.23607, 2.32342, 2.41418, 2.50848, 2.60648,
2.70829, 2.81409, 2.92402, 3.03824, 3.15693, 3.28025, 3.40838, 3.54153, 3.67987,
3.82362, 3.97299, 4.12819, 4.28945, 4.45701, 4.63112, 4.81202, 5.00000}

In[266]:= **eqs43 = Table[N[oct^(n/43), 6], {n, 0, 43}]**

Out[266]:= {1.00000, 1.03814, 1.07773, 1.11883, 1.16150, 1.20580, 1.25179, 1.29953,
1.34909, 1.40054, 1.45396, 1.50941, 1.56697, 1.62673, 1.68877, 1.75318, 1.82004,
1.88946, 1.96152, 2.03633, 2.11399, 2.19461, 2.27831, 2.36520, 2.45540, 2.54905,
2.64626, 2.74719, 2.85196, 2.96073, 3.07364, 3.19087, 3.31256, 3.43889, 3.57005,
3.70620, 3.84755, 3.99429, 4.14662, 4.30477, 4.46894, 4.63938, 4.81632, 5.00000}

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In[267]:= eqs44 = Table[N[oct^(n / 44), 6], {n, 0, 44}]
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Out[267]= {1.00000, 1.03726, 1.07590, 1.11598, 1.15756, 1.20068, 1.24541, 1.29181, 1.33994,  
1.38986, 1.44164, 1.49535, 1.55106, 1.60884, 1.66878, 1.73095, 1.79544, 1.86233,  
1.93171, 2.00368, 2.07833, 2.15575, 2.23607, 2.31937, 2.40578, 2.49541, 2.58838,  
2.68481, 2.78483, 2.88858, 2.99620, 3.10782, 3.22361, 3.34370, 3.46827, 3.59748,  
3.73151, 3.87053, 4.01473, 4.16430, 4.31944, 4.48036, 4.64728, 4.82041, 5.00000}
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