

# MUSICAL NUMBERS FOR ALL OCTAVES

In[1]:=

Out[1]= FOR MUSICAL NUMBERS

Out[2]= 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[3]:= **oct = 31**

Out[3]= 31

In[4]:= **eqtwo = Table[N[oct^(y/2)], {y, 1, 2}]**

Out[4]= {5.56776, 31.}

In[5]:= **eqthree = Table[N[oct^(y/3)], {y, 1, 3}]**

Out[5]= {3.14138, 9.86827, 31.}

In[6]:= **eqfour = Table[N[oct^(y/4)], {y, 1, 4}]**

Out[6]= {2.35961, 5.56776, 13.1378, 31.}

In[7]:= **eqfive = Table[N[oct^(y/5)], {y, 1, 5}]**

Out[7]= {1.98734, 3.94952, 7.84905, 15.5987, 31.}

In[8]:= **eqsix = Table[N[oct^(y/6)], {y, 1, 6}]**

Out[8]= {1.77239, 3.14138, 5.56776, 9.86827, 17.4905, 31.}

In[9]:= **eqseven = Table[N[oct^(y/7)], {y, 1, 7}]**

Out[9]= {1.63325, 2.66749, 4.35667, 7.11552, 11.6214, 18.9806, 31.}

In[10]:= **eqeight = Table[N[oct^(y/8)], {y, 1, 8}]**

Out[10]= {1.5361, 2.35961, 3.6246, 5.56776, 8.55266, 13.1378, 20.1809, 31.}

In[11]:= **eqnine = Table[N[oct^(y/9)], {y, 1, 9}]**

Out[11]= {1.46456, 2.14493, 3.14138, 4.60074, 6.73805, 9.86827, 14.4527, 21.1668, 31.}

In[12]:= **eqten = Table[N[oct^(y/10)], {y, 1, 10}]**

Out[12]= {1.40973, 1.98734, 2.80162, 3.94952, 5.56776, 7.84905, 11.065, 15.5987, 21.99, 31.}

In[13]:= **eqeleven = Table[N[oct^(y/11)], {y, 1, 11}]**

Out[13]= {1.3664, 1.86705, 2.55114, 3.48589, 4.76312, 6.50834, 8.893, 12.1514, 16.6037, 22.6873, 31.}

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In[14]:= eqtwelve = Table[N[oct^(y/12)], {y, 1, 12}]
Out[14]:= {1.33131, 1.77239, 2.35961, 3.14138, 4.18216,
          5.56776, 7.41244, 9.86827, 13.1378, 17.4905, 23.2853, 31.}

In[15]:= eqthirteen = Table[N[oct^(n/13)], 6], {n, 0, 13}]
Out[15]:= {1.00000, 1.30233, 1.69606, 2.20882, 2.87661, 3.74628,
          4.87889, 6.35391, 8.27487, 10.7766, 14.0346, 18.2777, 23.8035, 31.0000}

In[16]:= eqfourteen = Table[N[oct^(n/14)], 6], {n, 0, 14}]
Out[16]:= {1.00000, 1.27799, 1.63325, 2.08726, 2.66749, 3.40902, 4.35667,
          5.56776, 7.11552, 9.09353, 11.6214, 14.8520, 18.9806, 24.2569, 31.0000}

In[17]:= eqfifteen = Table[N[oct^(n/15)], 6], {n, 0, 15}]
Out[17]:= {1.00000, 1.25726, 1.58070, 1.98734, 2.49860, 3.14138, 3.94952, 4.96557,
          6.24299, 7.84905, 9.86827, 12.4070, 15.5987, 19.6116, 24.6568, 31.0000}

In[18]:= eqsixteen = Table[N[oct^(n/16)], 6], {n, 0, 16}]
Out[18]:= {1.00000, 1.23940, 1.53610, 1.90384, 2.35961, 2.92449, 3.62460, 4.49232,
          5.56776, 6.90067, 8.55266, 10.6001, 13.1378, 16.2829, 20.1809, 25.0122, 31.0000}

In[19]:= eq17 = Table[N[oct^(n/17)], 6], {n, 0, 17}]
Out[19]:= {1.00000, 1.22385, 1.49780, 1.83308, 2.24341, 2.74559, 3.36018, 4.11235, 5.03289,
          6.15949, 7.53827, 9.22569, 11.2908, 13.8183, 16.9114, 20.6970, 25.3300, 31.0000}

In[20]:= eq18 = Table[N[oct^(n/18)], 6], {n, 0, 18}]
Out[20]:= {1.00000, 1.21019, 1.46456, 1.77239, 2.14493, 2.59578, 3.14138, 3.80167, 4.60074, 5.56776,
          6.73805, 8.15432, 9.86827, 11.9425, 14.4527, 17.4905, 21.1668, 25.6158, 31.0000}

In[21]:= eq19 = Table[N[oct^(n/19)], 6], {n, 0, 19}]
Out[21]:= {1.00000, 1.19810, 1.43544, 1.71980, 2.06049, 2.46867, 2.95772, 3.54364, 4.24563, 5.08668,
          6.09435, 7.30163, 8.74808, 10.4811, 12.5574, 15.0450, 18.0253, 21.5961, 25.8743, 31.0000}

In[22]:= eq20 = Table[N[oct^(n/20)], 6], {n, 0, 20}]
Out[22]:= {1.00000, 1.18732, 1.40973, 1.67380, 1.98734, 2.35961,
          2.80162, 3.32642, 3.94952, 4.68935, 5.56776, 6.61072, 7.84905,
          9.31934, 11.0650, 13.1378, 15.5987, 18.5207, 21.9900, 26.1092, 31.0000}

In[23]:= eq21 = Table[N[oct^(n/21)], 6], {n, 0, 21}]
Out[23]:= {1.00000, 1.17765, 1.38687, 1.63325, 1.92340, 2.26509,
          2.66749, 3.14138, 3.69946, 4.35667, 5.13065, 6.04212, 7.11552, 8.37961,
          9.86827, 11.6214, 13.6860, 16.1173, 18.9806, 22.3526, 26.3236, 31.0000}

In[24]:= eq22 = Table[N[oct^(n/22)], 6], {n, 0, 22}]
Out[24]:= {1.00000, 1.16893, 1.36640, 1.59723, 1.86705, 2.18246, 2.55114,
          2.98211, 3.48589, 4.07476, 4.76312, 5.56776, 6.50834, 7.60780, 8.89300,
          10.3953, 12.1514, 14.2042, 16.6037, 19.4086, 22.6873, 26.5199, 31.0000}

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In[25]:= eq23 = Table[N[oct^(n/23), 6], {n, 0, 23}]
Out[25]= {1.00000, 1.16103, 1.34798, 1.56504, 1.81705, 2.10964, 2.44935, 2.84376,
          3.30168, 3.83333, 4.45060, 5.16726, 5.99932, 6.96536, 8.08696, 9.38917,
          10.9011, 12.6564, 14.6944, 17.0606, 19.8078, 22.9974, 26.7005, 31.0000}

In[26]:= eqs24 = Table[N[oct^(n/24), 6], {n, 0, 24}]
Out[26]= {1.00000, 1.15383, 1.33131, 1.53610, 1.77239, 2.04503, 2.35961, 2.72258,
          3.14138, 3.62460, 4.18216, 4.82548, 5.56776, 6.42423, 7.41244, 8.55266, 9.86827,
          11.3863, 13.1378, 15.1587, 17.4905, 20.1809, 23.2853, 26.8672, 31.0000}

In[27]:= eqs25 = Table[N[oct^(n/25), 6], {n, 0, 25}]
Out[27]= {1.00000, 1.14724, 1.31616, 1.50995, 1.73228, 1.98734, 2.27996, 2.61566,
          3.00079, 3.44263, 3.94952, 4.53105, 5.19821, 5.96359, 6.84168, 7.84905, 9.00475,
          10.3306, 11.8517, 13.5967, 15.5987, 17.8955, 20.5304, 23.5534, 27.0214, 31.0000}

In[28]:= eqs26 = Table[N[oct^(n/26), 6], {n, 0, 26}]
Out[28]= {1.00000, 1.14120, 1.30233, 1.48621, 1.69606, 1.93553, 2.20882, 2.52070, 2.87661,
          3.28277, 3.74628, 4.27524, 4.87889, 5.56776, 6.35391, 7.25105, 8.27487, 9.44324,
          10.7766, 12.2982, 14.0346, 16.0163, 18.2777, 20.8584, 23.8035, 27.1645, 31.0000}

In[29]:= eqs26 = Table[N[oct^(n/26), 6], {n, 0, 26}]
Out[29]= {1.00000, 1.14120, 1.30233, 1.48621, 1.69606, 1.93553, 2.20882, 2.52070, 2.87661,
          3.28277, 3.74628, 4.27524, 4.87889, 5.56776, 6.35391, 7.25105, 8.27487, 9.44324,
          10.7766, 12.2982, 14.0346, 16.0163, 18.2777, 20.8584, 23.8035, 27.1645, 31.0000}

In[30]:= eqs27 = Table[N[oct^(n/27), 6], {n, 0, 27}]
Out[30]= {1.00000, 1.13563, 1.28965, 1.46456, 1.66319, 1.88877, 2.14493, 2.43584, 2.76621, 3.14138,
          3.56744, 4.05128, 4.60074, 5.22472, 5.93333, 6.73805, 7.65191, 8.68971, 9.86827,
          11.2067, 12.7266, 14.4527, 16.4128, 18.6389, 21.1668, 24.0376, 27.2977, 31.0000}

In[31]:= eqs28 = Table[N[oct^(n/28), 6], {n, 0, 28}]
Out[31]= {1.00000, 1.13048, 1.27799, 1.44474, 1.63325, 1.84635, 2.08726, 2.35961, 2.66749, 3.01555,
          3.40902, 3.85383, 4.35667, 4.92513, 5.56776, 6.29425, 7.11552, 8.04395, 9.09353, 10.2801,
          11.6214, 13.1378, 14.8520, 16.7899, 18.9806, 21.4572, 24.2569, 27.4220, 31.0000}

In[32]:= eqs29 = Table[N[oct^(n/29), 6], {n, 0, 29}]
Out[32]= {1.00000, 1.12571, 1.26722, 1.42652, 1.60585, 1.80772, 2.03497, 2.29078, 2.57876, 2.90293,
          3.26785, 3.67865, 4.14109, 4.66167, 5.24768, 5.90737, 6.64998, 7.48594, 8.42700, 9.48635,
          10.6789, 12.0213, 13.5325, 15.2337, 17.1487, 19.3044, 21.7312, 24.4630, 27.5382, 31.0000}

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In[33]:= eqs30 = Table[N[oct^(n/30), 6], {n, 0, 30}]

Out[33]:= {1.00000, 1.12127, 1.25726, 1.40973, 1.58070, 1.77239, 1.98734,  
2.22836, 2.49860, 2.80162, 3.14138, 3.52235, 3.94952, 4.42850, 4.96557,  
5.56776, 6.24299, 7.00011, 7.84905, 8.80094, 9.86827, 11.0650, 12.4070,  
13.9116, 15.5987, 17.4905, 19.6116, 21.9900, 24.6568, 27.6471, 31.0000}

In[34]:= eqs31 = Table[N[oct^(n/31), 6], {n, 0, 31}]

Out[34]:= {1.00000, 1.11714, 1.24801, 1.39420, 1.55752, 1.73997, 1.94380, 2.17150,  
2.42587, 2.71004, 3.02750, 3.38215, 3.77834, 4.22095, 4.71540, 5.26777,  
5.88485, 6.57421, 7.34433, 8.20466, 9.16577, 10.2395, 11.4389, 12.7789,  
14.2759, 15.9482, 17.8164, 19.9034, 22.2350, 24.8396, 27.7494, 31.0000}

In[35]:= eqs32 = Table[N[oct^(n/32), 6], {n, 0, 32}]

Out[35]:= {1.00000, 1.11328, 1.23940, 1.37980, 1.53610, 1.71011, 1.90384, 2.11951,  
2.35961, 2.62691, 2.92449, 3.25578, 3.62460, 4.03521, 4.49232, 5.00122,  
5.56776, 6.19849, 6.90067, 7.68238, 8.55266, 9.52152, 10.6001, 11.8009, 13.1378,  
14.6260, 16.2829, 18.1274, 20.1809, 22.4671, 25.0122, 27.8456, 31.0000}

In[36]:= eqs33 = Table[N[oct^(n/33), 6], {n, 0, 33}]

Out[36]:= {1.00000, 1.10967, 1.23136, 1.36640, 1.51625, 1.68253, 1.86705, 2.07181,  
2.29902, 2.55114, 2.83092, 3.14138, 3.48589, 3.86818, 4.29239, 4.76312, 5.28548,  
5.86512, 6.50834, 7.22209, 8.01412, 8.89300, 9.86827, 10.9505, 12.1514, 13.4840,  
14.9628, 16.6037, 18.4246, 20.4452, 22.6873, 25.1754, 27.9363, 31.0000}

In[37]:= eqs34 = Table[N[oct^(n/34), 6], {n, 0, 34}]

Out[37]:= {1.00000, 1.10628, 1.22385, 1.35391, 1.49780, 1.65698, 1.83308, 2.02789,  
2.24341, 2.48183, 2.74559, 3.03738, 3.36018, 3.71729, 4.11235, 4.54940, 5.03289,  
5.56776, 6.15949, 6.81409, 7.53827, 8.33941, 9.22569, 10.2062, 11.2908, 12.4908,  
13.8183, 15.2868, 16.9114, 18.7087, 20.6970, 22.8966, 25.3300, 28.0219, 31.0000}

In[38]:= eqs35 = Table[N[oct^(n/35), 6], {n, 0, 35}]

Out[38]:= {1.00000, 1.10309, 1.21680, 1.34224, 1.48061, 1.63325, 1.80162, 1.98734, 2.19221,  
2.41820, 2.66749, 2.94248, 3.24582, 3.58042, 3.94952, 4.35667, 4.80580, 5.30122,  
5.84771, 6.45054, 7.11552, 7.84905, 8.65819, 9.55075, 10.5353, 11.6214, 12.8194,  
14.1410, 15.5987, 17.2068, 18.9806, 20.9373, 23.0957, 25.4766, 28.1029, 31.0000}

In[39]:= eqs36 = Table[N[oct^(n/36), 6], {n, 0, 36}]

Out[39]:= {1.00000, 1.10009, 1.21019, 1.33131, 1.46456, 1.61114, 1.77239, 1.94979, 2.14493, 2.35961,  
2.59578, 2.85558, 3.14138, 3.45579, 3.80167, 4.18216, 4.60074, 5.06121, 5.56776,  
6.12502, 6.73805, 7.41244, 8.15432, 8.97045, 9.86827, 10.8560, 11.9425, 13.1378,  
14.4527, 15.8992, 17.4905, 19.2410, 21.1668, 23.2853, 25.6158, 28.1796, 31.0000}

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In[40]= eqs37 = Table[N[oct^(n/37), 6], {n, 0, 37}]
Out[40]= {1.00000, 1.09725, 1.20397, 1.32106, 1.44953, 1.59051, 1.74519, 1.91492, 2.10115, 2.30549,
  2.52971, 2.77573, 3.04568, 3.34189, 3.66690, 4.02352, 4.41482, 4.84418, 5.31529, 5.83223,
  6.39943, 7.02180, 7.70470, 8.45401, 9.27619, 10.1783, 11.1682, 12.2544, 13.4462,
  14.7538, 16.1887, 17.7631, 19.4907, 21.3862, 23.4661, 25.7482, 28.2524, 31.0000}

In[41]= eqs38 = Table[N[oct^(n/38), 6], {n, 0, 38}]
Out[41]= {1.00000, 1.09458, 1.19810, 1.31141, 1.43544, 1.57120, 1.71980, 1.88245, 2.06049, 2.25537,
  2.46867, 2.70215, 2.95772, 3.23745, 3.54364, 3.87878, 4.24563, 4.64717, 5.08668, 5.56776,
  6.09435, 6.67073, 7.30163, 7.99220, 8.74808, 9.57545, 10.4811, 11.4723, 12.5574, 13.7450,
  15.0450, 16.4679, 18.0253, 19.7301, 21.5961, 23.6386, 25.8743, 28.3214, 31.0000}

In[42]= eqs39 = Table[N[oct^(n/39), 6], {n, 0, 39}]
Out[42]= {1.00000, 1.09204, 1.19256, 1.30233, 1.42220, 1.55310, 1.69606, 1.85217, 2.02265, 2.20882,
  2.41213, 2.63415, 2.87661, 3.14138, 3.43053, 3.74628, 4.09111, 4.46767, 4.87889, 5.32796,
  5.81836, 6.35391, 6.93875, 7.57741, 8.27487, 9.03652, 9.86827, 10.7766, 11.7685, 12.8517,
  14.0346, 15.3264, 16.7371, 18.2777, 19.9600, 21.7972, 23.8035, 25.9945, 28.3871, 31.0000}

In[43]= eqs40 = Table[N[oct^(n/40), 6], {n, 0, 40}]
Out[43]= {1.00000, 1.08964, 1.18732, 1.29376, 1.40973, 1.53610, 1.67380, 1.82385,
  1.98734, 2.16549, 2.35961, 2.57113, 2.80162, 3.05276, 3.32642, 3.62460,
  3.94952, 4.30357, 4.68935, 5.10972, 5.56776, 6.06687, 6.61072, 7.20332,
  7.84905, 8.55266, 9.31934, 10.1547, 11.0650, 12.0569, 13.1378, 14.3155, 15.5987,
  16.9970, 18.5207, 20.1809, 21.9900, 23.9613, 26.1092, 28.4497, 31.0000}

In[44]= eqs41 = Table[N[oct^(n/41), 6], {n, 0, 41}]
Out[44]= {1.00000, 1.08736, 1.18236, 1.28565, 1.39797, 1.52010, 1.65291, 1.79731,
  1.95433, 2.12506, 2.31072, 2.51259, 2.73210, 2.97078, 3.23032, 3.51253,
  3.81940, 4.15307, 4.51590, 4.91042, 5.33941, 5.80588, 6.31310, 6.86464, 7.46435,
  8.11646, 8.82555, 9.59657, 10.4350, 11.3466, 12.3379, 13.4157, 14.5878, 15.8622,
  17.2480, 18.7549, 20.3933, 22.1750, 24.1122, 26.2188, 28.5093, 31.0000}

In[45]= eqs42 = Table[N[oct^(n/42), 6], {n, 0, 42}]
Out[45]= {1.00000, 1.08520, 1.17765, 1.27799, 1.38687, 1.50502, 1.63325, 1.77239,
  1.92340, 2.08726, 2.26509, 2.45807, 2.66749, 2.89476, 3.14138, 3.40902, 3.69946,
  4.01464, 4.35667, 4.72785, 5.13065, 5.56776, 6.04212, 6.55689, 7.11552, 7.72174,
  8.37961, 9.09353, 9.86827, 10.7090, 11.6214, 12.6115, 13.6860, 14.8520, 16.1173,
  17.4905, 18.9806, 20.5977, 22.3526, 24.2569, 26.3236, 28.5662, 31.0000}

In[46]= eqs43 = Table[N[oct^(n/43), 6], {n, 0, 43}]
Out[46]= {1.00000, 1.08314, 1.17318, 1.27072, 1.37636, 1.49078, 1.61472, 1.74896,
  1.89436, 2.05185, 2.22243, 2.40719, 2.60732, 2.82408, 3.05886, 3.31316, 3.58860,
  3.88694, 4.21009, 4.56009, 4.93920, 5.34982, 5.79458, 6.27632, 6.79811, 7.36327,
  7.97542, 8.63846, 9.35663, 10.1345, 10.9770, 11.8896, 12.8781, 13.9487, 15.1083,
  16.3644, 17.7248, 19.1984, 20.7945, 22.5232, 24.3957, 26.4238, 28.6206, 31.0000}

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In[47]:= eqs44 = Table[N[oct^(n / 44), 6], {n, 0, 44}]
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Out[47]= {1.00000, 1.08117, 1.16893, 1.26382, 1.36640, 1.47731, 1.59723, 1.72688, 1.86705,  
2.01860, 2.18246, 2.35961, 2.55114, 2.75822, 2.98211, 3.22418, 3.48589, 3.76884,  
4.07476, 4.40552, 4.76312, 5.14975, 5.56776, 6.01971, 6.50834, 7.03663, 7.60780,  
8.22534, 8.89300, 9.61486, 10.3953, 11.2391, 12.1514, 13.1378, 14.2042, 15.3571,  
16.6037, 17.9515, 19.4086, 20.9840, 22.6873, 24.5289, 26.5199, 28.6726, 31.0000}
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