

# For n Roots and Scales

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In[ ]:= eqtwo = Table[N[2^(y/2)], {y, 1, 2}]
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Out[ ]:= {1.41421, 2.}
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```
In[ ]:= eqthree = Table[N[2^(y/3)], {y, 1, 3}]
```

```
Out[ ]:= {1.25992, 1.5874, 2.}
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```
In[ ]:= eqfour = Table[N[2^(y/4)], {y, 1, 4}]
```

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Out[ ]:= {1.18921, 1.41421, 1.68179, 2.}
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```
In[ ]:= eqfive = Table[N[2^(y/5)], {y, 1, 5}]
```

```
Out[ ]:= {1.1487, 1.31951, 1.51572, 1.7411, 2.}
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```
In[ ]:= eqsix = Table[N[2^(y/6)], {y, 1, 6}]
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```
Out[ ]:= {1.12246, 1.25992, 1.41421, 1.5874, 1.7818, 2.}
```

```
In[ ]:= eqseven = Table[N[2^(y/7)], {y, 1, 7}]
```

```
Out[ ]:= {1.10409, 1.21901, 1.3459, 1.48599, 1.64067, 1.81145, 2.}
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```
In[ ]:= eqeight = Table[N[2^(y/8)], {y, 1, 8}]
```

```
Out[ ]:= {1.09051, 1.18921, 1.29684, 1.41421, 1.54221, 1.68179, 1.83401, 2.}
```

```
In[ ]:= eqnine = Table[N[2^(y/9)], {y, 1, 9}]
```

```
Out[ ]:= {1.08006, 1.16653, 1.25992, 1.36079, 1.46973, 1.5874, 1.71449, 1.85175, 2.}
```

```
In[ ]:= eqten = Table[N[2^(y/10)], {y, 1, 10}]
```

```
Out[ ]:= {1.07177, 1.1487, 1.23114, 1.31951, 1.41421, 1.51572, 1.6245, 1.7411, 1.86607, 2.}
```

```
In[ ]:= eqeleven = Table[N[2^(y/11)], {y, 1, 11}]
```

```
Out[ ]:= {1.06504, 1.13431, 1.20809, 1.28666,  
1.37035, 1.45948, 1.55441, 1.65551, 1.76318, 1.87786, 2.}
```

```
In[ ]:= eqtwelve = Table[N[2^(y/12)], {y, 1, 12}]
```

```
Out[ ]:= {1.05946, 1.12246, 1.18921, 1.25992, 1.33484,  
1.41421, 1.49831, 1.5874, 1.68179, 1.7818, 1.88775, 2.}
```

```
In[ ]:= eqthirteen = Table[N[2^(n/13)], 6, {n, 0, 13}]
```

```
Out[ ]:= {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}
```

```
In[*]:= eqfourteen = Table[N[2^(n/14), 6], {n, 0, 14}]
```

```
Out[*]:= {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}
```

```
In[*]:= eqfifteen = Table[N[2^(n/15), 6], {n, 0, 15}]
```

```
Out[*]:= {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}
```

```
In[*]:= eqsixteen = Table[N[2^(n/16), 6], {n, 0, 16}]
```

```
Out[*]:= {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}
```

```
In[*]:= eq17 = Table[N[2^(n/17), 6], {n, 0, 17}]
```

```
Out[*]:= {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}
```

```
In[*]:= eq18 = Table[N[2^(n/18), 6], {n, 0, 18}]
```

```
Out[*]:= {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}
```

```
In[*]:= eq19 = Table[N[2^(n/19), 6], {n, 0, 19}]
```

```
Out[*]:= {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}
```

```
In[*]:= eq20 = Table[N[2^(n/20), 6], {n, 0, 20}]
```

```
Out[*]:= {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}
```

```
In[*]:= eq21 = Table[N[2^(n/21), 6], {n, 0, 21}]
```

```
Out[*]:= {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}
```

```
In[*]:= eq22 = Table[N[2^(n/22), 6], {n, 0, 22}]
```

```
Out[*]:= {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}
```

```
In[*]:= eq23 = Table[N[2^(n/23), 6], {n, 0, 23}]
```

```
Out[*]:= {1.00000, 1.03060, 1.06213, 1.09462, 1.12811, 1.16263, 1.19820, 1.23486,
1.27264, 1.31158, 1.35171, 1.39306, 1.43568, 1.47961, 1.52488, 1.57153,
1.61962, 1.66917, 1.72024, 1.77287, 1.82711, 1.88301, 1.94063, 2.00000}
```

```
In[*]:= eqs24 = Table[N[2^(n/24), 6], {n, 0, 24}]
```

```
Out[*]:= {1.00000, 1.02930, 1.05946, 1.09051, 1.12246, 1.15535, 1.18921, 1.22405,
1.25992, 1.29684, 1.33484, 1.37395, 1.41421, 1.45565, 1.49831, 1.54221, 1.58740,
1.63392, 1.68179, 1.73107, 1.78180, 1.83401, 1.88775, 1.94306, 2.00000}
```

In[#]:= eqs25 = Table[N[2^(n/25), 6], {n, 0, 25}]

Out[#]= {1.00000, 1.02811, 1.05702, 1.08673, 1.11729, 1.14870, 1.18099, 1.21419,  
1.24833, 1.28343, 1.31951, 1.35660, 1.39474, 1.43396, 1.47427, 1.51572, 1.55833,  
1.60214, 1.64718, 1.69349, 1.74110, 1.79005, 1.84038, 1.89212, 1.94531, 2.00000}

In[#]:= eqs26 = Table[N[2^(n/26), 6], {n, 0, 26}]

Out[#]= {1.00000, 1.02702, 1.05477, 1.08326, 1.11253, 1.14259, 1.17346, 1.20517, 1.23773,  
1.27117, 1.30551, 1.34078, 1.37701, 1.41421, 1.45242, 1.49166, 1.53197, 1.57336,  
1.61587, 1.65952, 1.70436, 1.75041, 1.79770, 1.84627, 1.89616, 1.94739, 2.00000}

In[24]:= eqs26 = Table[N[2^(n/26), 6], {n, 0, 26}]

Out[24]= {1.00000, 1.02702, 1.05477, 1.08326, 1.11253, 1.14259, 1.17346, 1.20517, 1.23773,  
1.27117, 1.30551, 1.34078, 1.37701, 1.41421, 1.45242, 1.49166, 1.53197, 1.57336,  
1.61587, 1.65952, 1.70436, 1.75041, 1.79770, 1.84627, 1.89616, 1.94739, 2.00000}

In[37]:= eqs27 = Table[N[2^(n/27), 6], {n, 0, 27}]

Out[37]= {1.00000, 1.02600, 1.05269, 1.08006, 1.10815, 1.13696, 1.16653, 1.19686, 1.22799, 1.25992,  
1.29268, 1.32630, 1.36079, 1.39618, 1.43248, 1.46973, 1.50795, 1.54717, 1.58740,  
1.62868, 1.67103, 1.71449, 1.75907, 1.80482, 1.85175, 1.89990, 1.94931, 2.00000}

In[38]:= eqs28 = Table[N[2^(n/28), 6], {n, 0, 28}]

Out[38]= {1.00000, 1.02506, 1.05076, 1.07709, 1.10409, 1.13176, 1.16013, 1.18921, 1.21901, 1.24957,  
1.28089, 1.31299, 1.34590, 1.37963, 1.41421, 1.44966, 1.48599, 1.52324, 1.56142, 1.60055,  
1.64067, 1.68179, 1.72395, 1.76715, 1.81145, 1.85685, 1.90339, 1.95110, 2.00000}

In[39]:= eqs29 = Table[N[2^(n/29), 6], {n, 0, 29}]

Out[39]= {1.00000, 1.02419, 1.04896, 1.07434, 1.10033, 1.12694, 1.15420, 1.18212, 1.21072, 1.24000,  
1.27000, 1.30072, 1.33218, 1.36441, 1.39741, 1.43122, 1.46584, 1.50129, 1.53761, 1.57480,  
1.61290, 1.65191, 1.69187, 1.73280, 1.77471, 1.81764, 1.86161, 1.90664, 1.95276, 2.00000}

In[40]:= eqs30 = Table[N[2^(n/30), 6], {n, 0, 30}]

Out[40]= {1.00000, 1.02337, 1.04729, 1.07177, 1.09682, 1.12246, 1.14870,  
1.17555, 1.20303, 1.23114, 1.25992, 1.28937, 1.31951, 1.35035, 1.38191,  
1.41421, 1.44727, 1.48110, 1.51572, 1.55114, 1.58740, 1.62450, 1.66248,  
1.70133, 1.74110, 1.78180, 1.82344, 1.86607, 1.90968, 1.95432, 2.00000}

In[41]:= eqs31 = Table[N[2^(n/31), 6], {n, 0, 31}]

Out[41]= {1.00000, 1.02261, 1.04573, 1.06938, 1.09356, 1.11829, 1.14357, 1.16943,  
1.19587, 1.22291, 1.25057, 1.27884, 1.30776, 1.33733, 1.36757, 1.39849,  
1.43011, 1.46245, 1.49552, 1.52933, 1.56391, 1.59928, 1.63544, 1.67242,  
1.71023, 1.74890, 1.78845, 1.82889, 1.87024, 1.91253, 1.95578, 2.00000}

In[42]:= eqs32 = Table[N[2^(n/32), 6], {n, 0, 32}]

Out[42]= {1.00000, 1.02190, 1.04427, 1.06714, 1.09051, 1.11439, 1.13879, 1.16372,  
1.18921, 1.21525, 1.24186, 1.26905, 1.29684, 1.32524, 1.35426, 1.38391,  
1.41421, 1.44518, 1.47683, 1.50916, 1.54221, 1.57598, 1.61049, 1.64576, 1.68179,  
1.71862, 1.75625, 1.79471, 1.83401, 1.87417, 1.91521, 1.95714, 2.00000}

In[43]:= eqs33 = Table[N[2^(n/33), 6], {n, 0, 33}]

Out[43]= {1.00000, 1.02123, 1.04290, 1.06504, 1.08765, 1.11074, 1.13431, 1.15839,  
1.18298, 1.20809, 1.23373, 1.25992, 1.28666, 1.31398, 1.34187, 1.37035, 1.39944,  
1.42914, 1.45948, 1.49046, 1.52210, 1.55441, 1.58740, 1.62110, 1.65551, 1.69065,  
1.72653, 1.76318, 1.80061, 1.83883, 1.87786, 1.91772, 1.95843, 2.00000}

In[44]:= eqs34 = Table[N[2^(n/34), 6], {n, 0, 34}]

Out[44]= {1.00000, 1.02060, 1.04162, 1.06307, 1.08496, 1.10731, 1.13012, 1.15339,  
1.17715, 1.20139, 1.22613, 1.25139, 1.27716, 1.30347, 1.33031, 1.35771, 1.38567,  
1.41421, 1.44334, 1.47307, 1.50341, 1.53437, 1.56597, 1.59823, 1.63114, 1.66474,  
1.69902, 1.73402, 1.76973, 1.80618, 1.84338, 1.88135, 1.92009, 1.95964, 2.00000}

In[45]:= eqs35 = Table[N[2^(n/35), 6], {n, 0, 35}]

Out[45]= {1.00000, 1.02000, 1.04040, 1.06121, 1.08244, 1.10409, 1.12617, 1.14870, 1.17167,  
1.19511, 1.21901, 1.24340, 1.26827, 1.29363, 1.31951, 1.34590, 1.37282, 1.40028,  
1.42829, 1.45685, 1.48599, 1.51572, 1.54603, 1.57696, 1.60850, 1.64067, 1.67349,  
1.70696, 1.74110, 1.77593, 1.81145, 1.84768, 1.88464, 1.92233, 1.96078, 2.00000}

In[46]:= eqs36 = Table[N[2^(n/36), 6], {n, 0, 36}]

Out[46]= {1.00000, 1.01944, 1.03926, 1.05946, 1.08006, 1.10106, 1.12246, 1.14428, 1.16653, 1.18921,  
1.21233, 1.23589, 1.25992, 1.28441, 1.30938, 1.33484, 1.36079, 1.38724, 1.41421,  
1.44171, 1.46973, 1.49831, 1.52744, 1.55713, 1.58740, 1.61826, 1.64972, 1.68179,  
1.71449, 1.74782, 1.78180, 1.81644, 1.85175, 1.88775, 1.92445, 1.96186, 2.00000}

In[47]:= eqs37 = Table[N[2^(n/37), 6], {n, 0, 37}]

Out[47]= {1.00000, 1.01891, 1.03818, 1.05781, 1.07781, 1.09820, 1.11896, 1.14012, 1.16168, 1.18365,  
1.20603, 1.22884, 1.25208, 1.27576, 1.29988, 1.32446, 1.34951, 1.37503, 1.40103, 1.42752,  
1.45452, 1.48202, 1.51005, 1.53860, 1.56770, 1.59734, 1.62755, 1.65833, 1.68969,  
1.72164, 1.75420, 1.78737, 1.82117, 1.85561, 1.89070, 1.92645, 1.96288, 2.00000}

In[48]:= eqs38 = Table[N[2^(n/38), 6], {n, 0, 38}]

Out[48]= {1.00000, 1.01841, 1.03716, 1.05625, 1.07569, 1.09549, 1.11566, 1.13620, 1.15711, 1.17841,  
1.20010, 1.22219, 1.24469, 1.26761, 1.29094, 1.31470, 1.33890, 1.36355, 1.38865, 1.41421,  
1.44025, 1.46676, 1.49376, 1.52126, 1.54926, 1.57778, 1.60682, 1.63640, 1.66652, 1.69720,  
1.72844, 1.76026, 1.79266, 1.82566, 1.85927, 1.89350, 1.92835, 1.96385, 2.00000}

In[49]:= eqs39 = Table[N[2^(n/39), 6], {n, 0, 39}]

Out[49]= {1.00000, 1.01793, 1.03619, 1.05477, 1.07368, 1.09293, 1.11253, 1.13248, 1.15279, 1.17346,  
1.19450, 1.21592, 1.23773, 1.25992, 1.28251, 1.30551, 1.32892, 1.35275, 1.37701, 1.40170,  
1.42684, 1.45242, 1.47847, 1.50498, 1.53197, 1.55944, 1.58740, 1.61587, 1.64484, 1.67434,  
1.70436, 1.73492, 1.76603, 1.79770, 1.82994, 1.86275, 1.89616, 1.93016, 1.96477, 2.00000}

In[52]:= eqs40 = Table[N[2^(n/40), 6], {n, 0, 40}]

Out[52]= {1.00000, 1.01748, 1.03526, 1.05336, 1.07177, 1.09051, 1.10957, 1.12896,  
1.14870, 1.16878, 1.18921, 1.20999, 1.23114, 1.25266, 1.27456, 1.29684,  
1.31951, 1.34257, 1.36604, 1.38992, 1.41421, 1.43893, 1.46409, 1.48968,  
1.51572, 1.54221, 1.56917, 1.59660, 1.62450, 1.65290, 1.68179, 1.71119, 1.74110,  
1.77154, 1.80250, 1.83401, 1.86607, 1.89868, 1.93187, 1.96564, 2.00000}

In[51]:= eqs41 = Table[N[2^(n/41), 6], {n, 0, 41}]

Out[51]= {1.00000, 1.01705, 1.03439, 1.05203, 1.06996, 1.08821, 1.10676, 1.12563,  
1.14482, 1.16434, 1.18419, 1.20438, 1.22492, 1.24580, 1.26704, 1.28864,  
1.31061, 1.33296, 1.35569, 1.37880, 1.40231, 1.42622, 1.45054, 1.47527, 1.50042,  
1.52600, 1.55202, 1.57848, 1.60539, 1.63276, 1.66060, 1.68892, 1.71771, 1.74700,  
1.77678, 1.80708, 1.83789, 1.86922, 1.90109, 1.93351, 1.96647, 2.00000}

In[50]:= eqs42 = Table[N[2^(n/42), 6], {n, 0, 42}]

Out[50]= {1.00000, 1.01664, 1.03356, 1.05076, 1.06824, 1.08602, 1.10409, 1.12246,  
1.14114, 1.16013, 1.17943, 1.19906, 1.21901, 1.23930, 1.25992, 1.28089, 1.30220,  
1.32387, 1.34590, 1.36830, 1.39107, 1.41421, 1.43775, 1.46167, 1.48599, 1.51072,  
1.53586, 1.56142, 1.58740, 1.61382, 1.64067, 1.66797, 1.69573, 1.72395, 1.75263,  
1.78180, 1.81145, 1.84159, 1.87224, 1.90339, 1.93506, 1.96726, 2.00000}

In[\*]:= eqs43 = Table[N[2^(n/43), 6], {n, 0, 43}]

Out[\*]= {1.00000, 1.01625, 1.03276, 1.04955, 1.06660, 1.08394, 1.10155, 1.11945,  
1.13764, 1.15613, 1.17492, 1.19401, 1.21341, 1.23313, 1.25317, 1.27353, 1.29423,  
1.31526, 1.33663, 1.35835, 1.38043, 1.40286, 1.42566, 1.44883, 1.47237, 1.49630,  
1.52061, 1.54532, 1.57043, 1.59595, 1.62189, 1.64824, 1.67503, 1.70225, 1.72991,  
1.75802, 1.78659, 1.81562, 1.84513, 1.87511, 1.90558, 1.93655, 1.96802, 2.00000}

In[\*]:= eqs44 = Table[N[2^(n/44), 6], {n, 0, 44}]

Out[\*]= {1.00000, 1.01588, 1.03201, 1.04839, 1.06504, 1.08195, 1.09913, 1.11658, 1.13431,  
1.15232, 1.17062, 1.18921, 1.20809, 1.22727, 1.24676, 1.26655, 1.28666, 1.30709,  
1.32785, 1.34893, 1.37035, 1.39211, 1.41421, 1.43667, 1.45948, 1.48265, 1.50620,  
1.53011, 1.55441, 1.57909, 1.60416, 1.62963, 1.65551, 1.68179, 1.70850, 1.73562,  
1.76318, 1.79118, 1.81962, 1.84851, 1.87786, 1.90768, 1.93797, 1.96874, 2.00000}