

The 0th through 40th powers of 2

(From Wikipedia)

$2^0 =$	<u>1</u>						
$2^1 =$	<u>2</u>	$2^{11} =$	2,048	$2^{21} =$	2,097,152	$2^{31} =$	2,147,483,648
$2^2 =$	<u>4</u>	$2^{12} =$	4,096	$2^{22} =$	4,194,304	$2^{32} =$	4,294,967,296
$2^3 =$	<u>8</u>	$2^{13} =$	8,192	$2^{23} =$	8,388,608	$2^{33} =$	8,589,934,592
$2^4 =$	<u>16</u>	$2^{14} =$	16,384	$2^{24} =$	16,777,216	$2^{34} =$	17,179,869,184
$2^5 =$	<u>32</u>	$2^{15} =$	32,768	$2^{25} =$	33,554,432	$2^{35} =$	34,359,738,368
$2^6 =$	<u>64</u>	$2^{16} =$	65,536	$2^{26} =$	67,108,864	$2^{36} =$	68,719,476,736
$2^7 =$	<u>128</u>	$2^{17} =$	131,072	$2^{27} =$	134,217,728	$2^{37} =$	137,438,953,472
$2^8 =$	<u>256</u>	$2^{18} =$	262,144	$2^{28} =$	268,435,456	$2^{38} =$	274,877,906,944
$2^9 =$	512	$2^{19} =$	524,288	$2^{29} =$	536,870,912	$2^{39} =$	549,755,813,888
$2^{10} =$	<u>1,024</u>	$2^{20} =$	1,048,576	$2^{30} =$	1,073,741,824	$2^{40} =$	1,099,511,627,776

Powers of two whose exponents are powers of two

Because modern memory cells and registers are accessed by a [Computer bus](#) whose width (number of bits) is also a power of two, the most frequent powers of two to appear are those whose exponent is also a power of two. For example:

$2^1 =$	<u>2</u>
$2^2 =$	<u>4</u>
$2^4 =$	<u>16</u>
$2^8 =$	<u>256</u>
$2^{16} =$	65,536
$2^{32} =$	4,294,967,296
$2^{64} =$	18,446,744,073,709,551,616
$2^{128} =$	340,282,366,920,938,463,463,374,607,431,768,211,456
$2^{256} =$	115,792,089,237,316,195,423,570,985,008,687,907,853,269,984,665,640,564,039,457,584,007,913,129,639,936

Several of these numbers represent the number of values representable using common [computer data types](#). For example, a 32-bit word consisting of 4 bytes can represent 2^{32} distinct values, which can either be regarded as mere bit-patterns, or are more commonly interpreted as the unsigned numbers from 0 to $2^{32}-1$, or as the range of signed numbers between -2^{31} and $2^{31}-1$.

Negative powers of two

(From <http://xtremebasic.conforums3.com/index.cgi?board=poweroftwo&action=print&num=1121474549>)

$2^0=1$
 $2^{-1}=0.5(\frac{1}{2})$
 $2^{-2}=0.25(\frac{1}{4})$
 $2^{-3}=0.125$
 $2^{-4}=0.0625$
 $2^{-5}=0.03125$
 $2^{-6}=0.015625$
 $2^{-7}=0.0078125$
 $2^{-8}=0.00390625$
 $2^{-9}=0.001953125$
 $2^{-10}=0.0009765625$
 $2^{-11}=0.00048828125$
 $2^{-12}=0.000244140625$
 $2^{-13}=0.0001220703125$
 $2^{-14}=0.00006103515625$
 $2^{-15}=0.000030517578125$
 $2^{-16}=0.0000152587890625$
 $2^{-17}=0.00000762939453125$
 $2^{-18}=0.000003814697265625$
 $2^{-19}=0.0000019073486328125$
 $2^{-20}=0.00000095367431640625$
 $2^{-21}=0.000000476837158203125$
 $2^{-22}=0.0000002384185791015625$
 $2^{-23}=0.00000011920928955078125$
 $2^{-24}=0.000000059604644775390625$
 $2^{-25}=0.0000000298023223876953125$
 $2^{-26}=0.00000001490116119384765625$
 $2^{-27}=0.000000007450580596923828125$
 $2^{-28}=0.0000000037252902984619140625$
 $2^{-29}=0.00000000186264514923095703125$
 $2^{-30}=0.000000000931322574615478515625$
 $2^{-31}=0.0000000004656612873077392578125$
 $2^{-32}=0.00000000023283064365386962890625$
 $2^{-33}=0.000000000116415321826934814453125$
 $2^{-34}=0.0000000000582076609134674072265625$
 $2^{-35}=0.00000000002910383045673370361328125$

 $2^{-36}=1.4551915228366851806640625e-11$
 $2^{-37}=7.2759576141834259033203125e-12$
 $2^{-38}=3.63797880709171295166015625e-12$
 $2^{-39}=1.818989403545856475830078125e-12$
 $2^{-40}=9.094947017729282379150390625e-13$
 $2^{-41}=4.5474735088646411895751953125e-13$
 $2^{-42}=2.27373675443232059478759765625e-13$
 $2^{-43}=1.136868377216160297393798828125e-13$
 $2^{-44}=5.684341886080801486968994140625e-14$
 $2^{-45}=2.8421709430404007434844970703125e-14$
 $2^{-46}=1.42108547152020037174224853515625e-14$
 $2^{-47}=7.10542735760100185871124267578125e-15$
 $2^{-48}=3.552713678800500929355621337890625e-15$
 $2^{-49}=1.7763568394002504646778106689453125e-15$
 $2^{-50}=8.8817841970012523233890533447265625e-16$
 $2^{-51}=4.44089209850062616169452667236328125e-16$
 $2^{-52}=2.220446049250313080847263336181640625e-16$
 $2^{-53}=1.1102230246251565404236316680908203125e-16$
 $2^{-54}=5.5511151231257827021181583404541015625e-17$
 $2^{-55}=2.77555756156289135105907917022705078125e-17$
 $2^{-56}=1.387778780781445675529539585113525390625e-17$
 $2^{-57}=6.938893903907228377647697925567626953125e-18$
 $2^{-58}=3.4694469519536141888238489627838134765625e-18$
 $2^{-59}=1.73472347597680709441192448139190673828125e-18$
 $2^{-60}=8.67361737988403547205962240695953369140625e-19$
 $2^{-61}=4.336808689942017736029811203479766845703125e-19$
 $2^{-62}=2.1684043449710088680149056017398834228515625e-19$
 $2^{-63}=1.08420217248550443400745280086994171142578125e-19$
 $2^{-64}=5.42101086242752217003726400434970855712890625e-20$
 $2^{-65}=2.710505431213761085018632002174854278564453125e-20$
 $2^{-66}=1.3552527156068805425093160010874271392822265625e-20$
 $2^{-67}=6.7762635780344027125465800054371356964111328125e-21$
 $2^{-68}=3.38813178901720135627329000271856784820556640625e-21$
 $2^{-69}=1.694065894508600678136645001359283924102783203125e-21$

2^70=8.470329472543003390683225006796419620513916015625e-22
2^71=4.2351647362715016953416125033982098102569580078125e-22
2^72=2.11758236813575084767080625169910490512847900390625e-22
2^73=1.058791184067875423835403125849552452564239501953125e-22
2^74=5.293955920339377119177015629247762262821197509765625e-23
2^75=2.6469779601696885595885078146238811314105987548828125e-23
2^76=1.32348898008484427979425390731194056570529937744140625e-23
2^77=6.61744490042422139897126953655970282852649688720703125e-24
2^78=3.308722450212110699485634768279851414263248443603515625e-24
2^79=1.6543612251060553497428173841399257071316242218017578125e-24
2^80=8.2718061255302767487140869206996285356581211090087890625e-25
2^81=4.13590306276513837435704346034981426782906055450439453125e-25
2^82=2.067951531382569187178521730174907133914530277252197265625e-25
2^83=1.0339757656912845935892608650874535669572651386260986328125e-25
2^84=5.1698788284564229679463043254372678347863256931304931640625e-26
2^85=2.58493941422821148397315216271863391739316284656524658203125e-26
2^86=1.292469707114105741986576081359316958696581423282623291015625e-26
2^87=6.462348535570528709932880406796584793482907116413116455078125e-27
2^88=3.2311742677852643549664402033982923967414535582065582275390625e-27
2^89=1.61558713389263217748322010169914619837072677910327911376953125e-27
2^90=8.07793566946316088741610050849573099185363389551639556884765625e-28
2^91=4.038967834731580443708050254247865495926816947758197784423828125e-28
2^92=2.0194839173657902218540251271239327479634084738790988922119140625e-28
2^93=1.00974195868289511092701256356196637398170423693954944610595703125e-28
2^94=5.04870979341447555463506281780983186990852118469774723052978515625e-29
2^95=2.52435489670723777317531408904915934954260592348873615264892578125e-29
2^96=1.2621774483536188886857657044524579674771302961744368076324462890625e-29
2^97=6.310887241768094443293828522622898373856514808721840381622314453125e-30
2^98=3.15544362088404722164691426113114491869282574043609201908111572265625e-30
2^99=1.577721810442023610823457130565572459346412870218046009540557861328125e-30
2^100=7.888609052210118054117285652827862296732064351090230047702789306640625e-31
2^101=3.9443045261050590270586428264139311483660321755451150238513946533203125e-31
2^102=1.97215226305252951352932141320696557418301608777255751192569732666015625e-31
2^103=9.86076131526264756764660706603482787091508043886278755962848663330078125e-32
2^104=4.930380657631323783823303533017413935457540219431393779814243316650390625e-32
2^105=2.4651903288156618919116517665087069677287701097156968899071216583251953125e-32
2^106=1.23259516440783094959582588325435348386438505485784844495356082916259765625e-32
2^107=6.16297582203915472977912941627176741932192527428924222476780414581298828125e-33
2^108=3.081487911019577364889564708135883709660962637144621112383902072906494140625e-33
2^109=1.540743955097886824447823540679418548304813185723105561919510364532470703125e-33
2^110=7.7037197775489434122239117703397092741524065928615527809597551822662353515625e-34
2^111=3.85185988877447170611195588516985463707620329643077639047987759113311767578125e-34
2^112=1.925929944387235853055977942584927318538101648215388195239938795566558837890625e-34
2^113=9.629649721936179265279889712924636592690508241076940976199693977832794189453125e-35
2^114=4.8148248609680896326399448564623182963452541205384704880998469889163970947265625e-35
2^115=2.40741243048404481631997242823115914817262706026923524404992349445819854736328125e-35
2^116=1.203706215242022408159986214115579574086313530134617622024961747229099273681640625e-35
2^117=6.018531076210112040799931070577897870431567650673088110124808736145496368408203125e-36
2^118=3.0092655381050560203999655352889489352157838253365440550624043680727481842041015625e-36
2^119=1.50463276905252801019998276764447446760789191266827202753120218403637409210205078125e-36
2^120=7.52316384526264005099991383822237233803945956334136013765601092018187046051025390625e-37
2^121=3.76158192263132002549995691911186169019729781670680068828005460090935230255126953125e-37
2^122=1.880790961315660012749978459555930845098648908353400344140027300454676151275634765625e-37
2^123=9.403954806578300063749892297779654225493244541767001720700136502273380756378173828125e-38
2^124=4.70197740328915003187494614888898271127466222708835008603500682511366903781890869140625e-38
2^125=2.350988701644575015937473074444491355637331113544175043017503412556834518909454345703125e-38
2^126=1.1754943508222875079687365372222456778186655567720875215087517062784172594547271728515625e-38
2^127=5.8774717541114375398436826861112283890933277838604376075437585313920862972736358642578125e-39
2^128=2.93873587705571876992184134305561419454666389193021880377187926569604314863681793212890625e-39