DECIMAL DATA

The first two tables below give the decimal expansion of $1/b$ for $2 \le b \le 90$. Some expansions do not have their periodic part at the beginning (*e.g.*, $1/44 = .02\overline{27} = .0227272727\ldots$ has an initial 02 which is not in the periodic part). Those $1/b$ having a purely periodic decimal expansion (that is, it repeats right from the start) are printed in bold. A finite decimal expansion could be viewed as an expansion with periodic part 0 (*e.g.*, $1/16 = .0625 = .0625\overline{0}$).

Fraction	Decimal Expansion
1/2	$.5$
1/3	$.\overline{3}$
1/4	$.25$
1/5	$.20$
1/6	$.1\overline{6}$
1/7	$.\overline{142857}$
1/8	$.125$
1/9	$.\overline{1}$
1/10	$.1$
1/11	$.\overline{09}$
1/12	$.08\overline{3}$
1/13	$.\overline{076923}$
1/14	$.0\overline{714528}$
1/15	$.0\overline{6}$
1/16	$.0625$
1/17	$.\overline{0588235294117647}$
1/18	$.0\overline{5}$
1/19	$.\overline{052631578947368421}$
1/20	$.05$
1/21	$.\overline{047619}$
1/22	$.0\overline{45}$
1/23	$.\overline{0434782608695652173913}$
1/24	$.041\overline{6}$
1/25	$.04$
1/26	$.0\overline{384615}$
1/27	$.\overline{037}$
1/28	$.03\overline{571428}$
1/29	$.\overline{0344827586206896551724137931}$
1/30	$.0\overline{3}$
1/31	$.\overline{032258064516129}$
1/32	$.03125$
1/33	$.\overline{03}$
1/34	$.02\overline{941176470588235}$
1/35	$.0\overline{285714}$
1/36	$.02\overline{7}$
1/37	$.\overline{027}$
1/38	$.0\overline{263157894736842105}$
1/39	$.\overline{025641}$
1/40	$.025$

Fraction	Decimal Expansion
1/41	$.\overline{02439}$
1/42	$.0\overline{238095}$
1/43	$.\overline{023255813953488372093}$
1/44	$.02\overline{27}$
1/45	$.0\overline{2}$
1/46	$.\overline{0217391304347826086956 5}$
1/47	$.\overline{021276595744680851063829787234042553191489361 7}$
1/48	$.02083$
1/49	$.\overline{020408163265306122448979591836734693877551}$
1/50	$.02$
1/51	$.\overline{0196078431372549}$
1/52	$.01\overline{923076}$
1/53	$.\overline{0188679245283}$
1/54	$.01\overline{851}$
1/55	$.0\overline{18}$
1/56	$.017857142$
1/57	$.\overline{017543859649122807}$
1/58	$.\overline{01724137931034482758620689655}$
1/59	$.\overline{016949152542372881355932203389830508474576271186440677966 1}$
1/60	$.01\overline{6}$
1/61	$.\overline{016393442622950819672131147540983606557377049180327868852459}$
1/62	$.0\overline{161290322580645}$
1/63	$.\overline{015873015873}$
1/64	$.015625$
1/65	$.\overline{0153846}$
1/66	$.0\overline{15}$
1/67	$.\overline{014925373134328358208955223880597}$
1/68	$.01\overline{4705882352941176}$
1/69	$.\overline{014492753623188405797 1}$
1/70	$.0\overline{142857}$
1/71	$.\overline{014084507042253521126760563380281 69}$
1/72	$.013\overline{8}$
1/73	$.\overline{01369863}$
1/74	$.0\overline{135}$
1/75	$.013\overline{3}$
1/76	$.0131578947368421052 6$
1/77	$.\overline{012987}$
1/78	$.0\overline{128205}$
1/79	$.\overline{0126582278481}$
1/80	$.0125$
1/81	$.\overline{012345679}$
1/82	$.0\overline{12195}$
1/83	$.\overline{012048192771084337349397590361445783132 53}$
1/84	$.01\overline{190476}$
1/85	$.\overline{0117647058823529 4}$
1/86	$.\overline{011627906976744186046 5}$
1/87	$.\overline{011494252873563218390804597 7}$
1/88	$.011\overline{36}$
1/89	$.\overline{011235955056179775280898876404494382022471 91}$
1/90	$.0\overline{1}$

The next table indicates the period length for the decimal expansion of $1/p$ when p is a prime up to 113, other than 2 and 5.

p	3	7	11	13	17	19	23	29	31	37	41	43	47	53
length$(1/p)$	1	6	2	6	16	18	22	28	15	3	5	21	46	13
p	59	61	67	71	73	79	83	89	97	101	103	107	109	113
length$(1/p)$	58	60	33	35	8	13	41	44	96	4	34	53	108	112

So far we have focused on unit fractions $1/b$. Now we will compare the decimal expansions of *all* reduced proper fractions with a common denominator (like $1/7, 2/7, 3/7, \ldots, 6/7$). In the tables below, only purely periodic decimals are listed.

Fraction	Decimal	Fraction	Decimal
1/3	$.\overline{3}$	2/3	$.\overline{6}$
1/7	$.\overline{142857}$	2/7	$.\overline{285714}$
3/7	$.\overline{428571}$	4/7	$.\overline{571428}$
5/7	$.\overline{714285}$	6/7	$.\overline{857142}$
1/9	$.\overline{1}$	2/9	$.\overline{2}$
4/9	$.\overline{4}$	5/9	$.\overline{5}$
7/9	$.\overline{7}$	8/9	$.\overline{8}$
1/11	$.\overline{09}$	2/11	$.\overline{18}$
3/11	$.\overline{27}$	4/11	$.\overline{36}$
5/11	$.\overline{45}$	6/11	$.\overline{54}$
7/11	$.\overline{63}$	8/11	$.\overline{72}$
9/11	$.\overline{81}$	10/11	$.\overline{90}$
1/13	$.\overline{076923}$	2/13	$.\overline{153846}$
3/13	$.\overline{230769}$	4/13	$.\overline{307692}$
5/13	$.\overline{384615}$	6/13	$.\overline{461538}$
7/13	$.\overline{538461}$	8/13	$.\overline{615384}$
9/13	$.\overline{692307}$	10/13	$.\overline{769230}$
11/13	$.\overline{846153}$	12/13	$.\overline{923076}$
1/17	$.\overline{0588235294117647}$	2/17	$.\overline{1176470588235294}$
3/17	$.\overline{1764705882352941}$	4/17	$.\overline{2352941176470588}$
5/17	$.\overline{2941176470588235}$	6/17	$.\overline{3529411764705882}$
7/17	$.\overline{4117647058823529}$	8/17	$.\overline{4705882352941176}$
9/17	$.\overline{5294117647058823}$	10/17	$.\overline{5882352941176470}$
11/17	$.\overline{6470588235294117}$	12/17	$.\overline{7058823529411764}$
13/17	$.\overline{7647058823529411}$	14/17	$.\overline{8235294117647058}$
15/17	$.\overline{8823529411764705}$	16/17	$.\overline{9411764705882352}$
1/19	$.\overline{052631578947368421}$	2/19	$.\overline{105263157894736842}$
3/19	$.\overline{157894736842105263}$	4/19	$.\overline{210526315789473684}$
5/19	$.\overline{263157894736842105}$	6/19	$.\overline{315789473684210526}$
7/19	$.\overline{368421052631578947}$	8/19	$.\overline{421052631578947368}$
9/19	$.\overline{473684210526315789}$	10/19	$.\overline{526315789473684210}$
11/19	$.\overline{578947368421052631}$	12/19	$.\overline{631578947368421052}$
13/19	$.\overline{684210526315789473}$	14/19	$.\overline{736842105263157894}$
15/19	$.\overline{789473684210526315}$	16/19	$.\overline{842105263157894736}$
17/19	$.\overline{894736842105263157}$	18/19	$.\overline{947368421052631578}$

Fraction	Decimal	Fraction	Decimal
1/21	$.\overline{047619}$	2/21	$.\overline{095238}$
4/21	$.\overline{190476}$	5/21	$.\overline{238095}$
8/21	$.\overline{380952}$	10/21	$.\overline{476190}$
11/21	$.\overline{523809}$	13/21	$.\overline{619047}$
16/21	$.\overline{761904}$	17/21	$.\overline{809523}$
19/21	$.\overline{904761}$	20/21	$.\overline{952380}$
1/23	$.\overline{043478260869565217391 3}$	2/23	$.\overline{086956521739130434782 6}$
3/23	$.\overline{130434782608695652173 9}$	4/23	$.\overline{173913043478260869565 2}$
5/23	$.\overline{217391304347826086956 5}$	6/23	$.\overline{260869565217391304347 8}$
7/23	$.\overline{304347826086956521739 1}$	8/23	$.\overline{347826086956521739130 4}$
9/23	$.\overline{391304347826086956521 7}$	10/23	$.\overline{434782608695652173913 0}$
11/23	$.\overline{478260869565217391304 3}$	12/23	$.\overline{521739130434782608695 6}$
13/23	$.\overline{565217391304347826086 9}$	14/23	$.\overline{608695652173913043478 2}$
15/23	$.\overline{652173913043478260869 5}$	16/23	$.\overline{695652173913043478260 8}$
17/23	$.\overline{739130434782608695652 1}$	18/23	$.\overline{782608695652173913043 4}$
19/23	$.\overline{826086956521739130434 7}$	20/23	$.\overline{869565217391304347826 0}$
21/23	$.\overline{913043478260869565217 3}$	22/23	$.\overline{956521739130434782608 6}$
1/27	$.\overline{037}$	2/27	$.\overline{074}$
4/27	$.\overline{148}$	5/27	$.\overline{185}$
7/27	$.\overline{259}$	8/27	$.\overline{296}$
10/27	$.\overline{370}$	11/27	$.\overline{407}$
13/27	$.\overline{481}$	14/27	$.\overline{518}$
16/27	$.\overline{592}$	17/27	$.\overline{629}$
19/27	$.\overline{703}$	20/27	$.\overline{740}$
22/27	$.\overline{814}$	23/27	$.\overline{851}$
25/27	$.\overline{925}$	26/27	$.\overline{962}$