

# Problem 6 – Fun With Square Roots data

$x$ value <i>output</i> using <i>logspace</i> , $n = 49$	$\ln(\text{output})$
1.0	0.0
1.285286	0.25098
1.651961	0.50196
2.118361	0.75064
2.722701	1.0016
3.491403	1.2503
4.487453	1.5013
5.767664	1.7523
7.396052	2.0009
9.506047	2.2519

$x$ value <i>output</i> using <i>logspace</i> , $n = 50$	$\ln(\text{output})$
1.000000	0.0
1.651962	0.50196
2.722701	1.0016
4.487454	1.5013
7.396053	2.0009

$x$ value <i>output</i> using <i>logspace</i> , $n = 50$	$\ln(\text{output})$
1.000000	0.0
2.722701	1.0016
7.396053	2.0009

$x$ value <i>output</i> using <i>logspace</i> , $n = 52$	$\ln(\text{output})$
1.000000	0.0
7.396053	2.0009

The natural logarithm of the values that returned to their original state are spaced apart by some multiple of  $2^{-s}$ . To the right is a small summary for the relationship between the amount of times square-rooted/squared  $n$ , the amount of terms that returned to their original state (including 1.0) – let's call this  $m$ , and the exponent in the spacing  $s$ .

$n$	$m$	$s$
52	2	-1
51	3	0
50	5	1
49	10	2