

# 1.1 Ben Pang

- a.  $\log_2(n)$  for  $\log_5(n)$
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- 2.2 = 1.1375  
3.3 = 1.7225  
55 = 6.5699  
6 = 2.5849 = 2.5850  
19.5 = 4.2854  
1.61 = -0.3040  
32 = 5.0000  
1 = 0.0000  
31 = 4.9542  
12 = 3.5850
- b. Some numbers have logs and others do not because of a few conditions:
- $n$  must be positive real number,
  - $n$  must not be 0, Therefore any number  $\leq 0$  will not have a logarithm.
  - Positive numbers  $> 0$  will have one.

2.  $\log_2(n)$

1	= 0	32	= 5	2048	= 11	65536	= 16
2	= 1	64	= 6	4096	= 12		
4	= 2	128	= 7	8192	= 13		
8	= 3	256	= 8	16384	= 14		
16	= 4	512	= 9	32768	= 15		

(You are missing 512 = 9)

3. floor or ceiling describes rounding up or down to nearest integer:

floor(10) = 3	ceiling(10) = 4
50 = 5	50 = 6
75 = 6	75 = 7
300 = 8	300 = 9
2048 = 11	2048 = 11

(this is already both)

4. Given the first 5 powers of  $\log_5(n)$ :

floor( $\log_5(n)$ )

for:

50	= 2
100	= 2
345	= 3
900	= 4
2000	= 4