

## Coastline Measurements

Use the information you obtain from your coastline measurements to complete this worksheet.

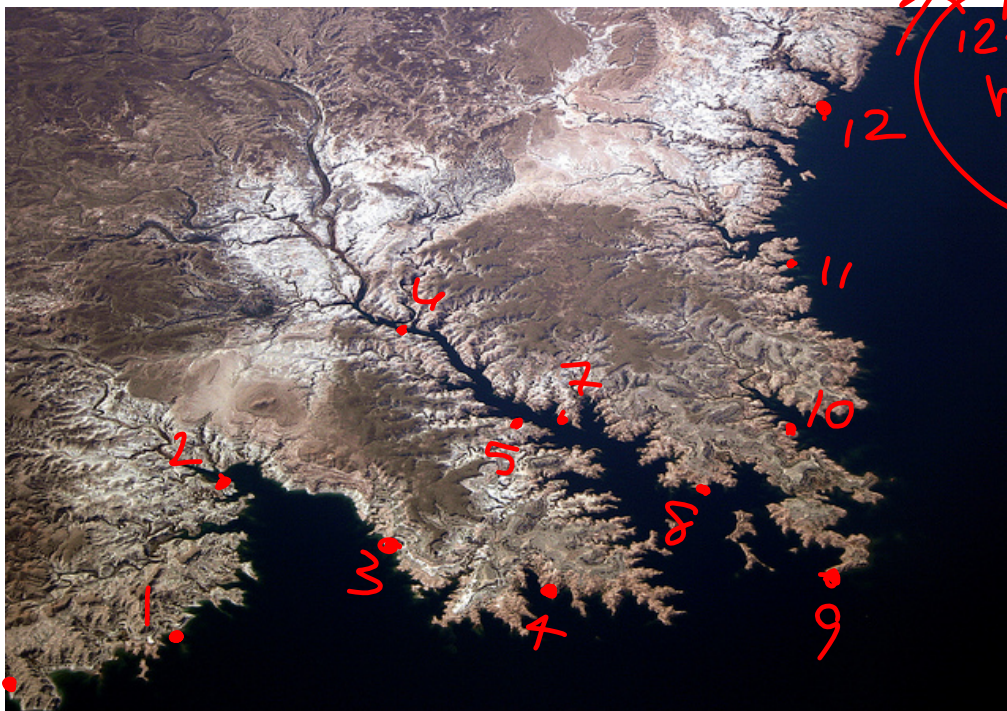
	Size of Step (S) (in cm)	Measured Number of Steps (N)	Length (S x N) (in cm)
Test 1	2 cm		
Test 2	1 cm		
Test 3	0.5 cm		

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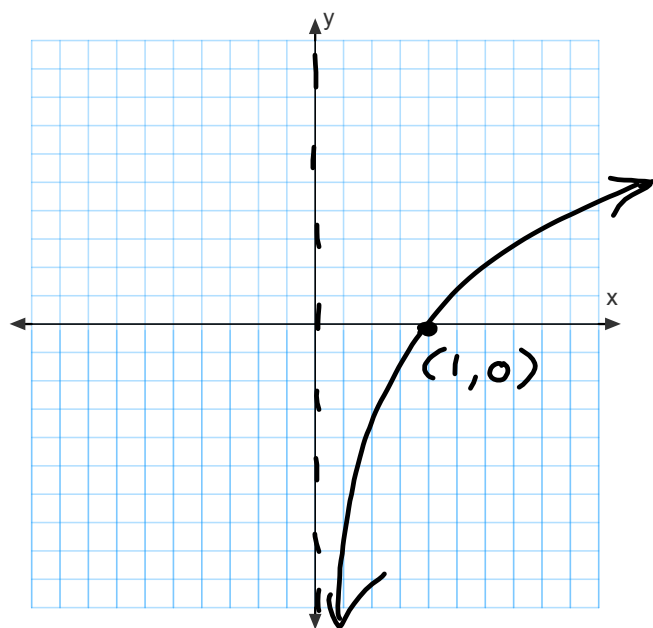
It is recommended that you use three different colors to mark your three different sets of points; otherwise you will probably get confused which points go with which step size!

**DUE MONDAY.**

[http://www.pbs.org/wgbh/nova/education/activities/3514\\_fractals.html](http://www.pbs.org/wgbh/nova/education/activities/3514_fractals.html)



Chris Moran. *Part of the coastline at Lake Mead.* flickr: [http://www.flickr.com/photos/buggs\\_moran/4516938146/in/photostream/](http://www.flickr.com/photos/buggs_moran/4516938146/in/photostream/). Accessed 24 January 2014.



$$y = \log x$$

As  $x$  increases,  $y$  increases. Even though as  $x$  becomes larger we see a smaller increase in  $y$ , this function grows without bound; i.e. as  $x$  tends to infinity,  $y$  also tends to infinity.

Consider the sequence of fractions  
 $1/2, 1/4, 1/8, 1/16, 1/32, 1/64, \dots, 1/1024, \dots$

If the denominator of a fraction grows without bound, but the denominator stays constant, what happens to the whole fraction?

Recall horizontal asymptotes from Precalculus: determining the "end behavior" of function is the same as asking what the function "tends to" as  $x$  goes to infinity.