

1. Consider the function $f(x) = 1.5^x$.

(a) Fill in the following table. Do you notice any relationship between the second and fourth columns?

x	$f(x)$	$f(x + 1)$	$f(x + 1) - f(x)$
-3			
-2			
-1			
0			
1			
2			
3			
4			
5			
6			

(b) Graph the second and fourth columns below.



2. Consider the function $g(x) = 0.75^x$.

(a) Fill in the following table. Do you notice any relationship between the second and fourth columns?

x	$g(x)$	$g(x + 1)$	$g(x + 1) - g(x)$
-3			
-2			
-1			
0			
1			
2			
3			
4			
5			
6			

(b) Graph the second and fourth columns below. Choose your vertical scale to make the graphs as visible as possible.



3. Consider the function $\ln x$.

(a) Fill in the following table. Do you notice any relationship between the second and fourth columns?

x	$\ln x$	$\ln(x + 1)$	$\ln(x + 1) - \ln(x)$
0.25			
0.5			
1			
2			
3			
4			
5			
6			
7			
8			
9			

(b) Graph the second and fourth columns below. Can you guess an approximate formula for the fourth column?



4. (a) Draw the graph of a function that has no inverse, and **EXPLAIN** how you can be sure it has no inverse.
- (b) Draw a non-linear graph of a function that has an inverse, **EXPLAIN** how you can be sure that function has an inverse, and draw the graph of its inverse.