

## Understanding Exponential Growth and Decay Part I

For the first part of this lesson you are going to look at some specific values for a few exponential functions --- and try to make some observations about them. We will then be looking at these functions (and a few more) graphically to deepen our understanding.

So....evaluate the following functions for the given values of t:

t	$2^t$	$3^t$	$5^t$	$2(2^t)$	$-2(2^t)$	$\left(\frac{1}{2}\right)^t$	$\left(\frac{1}{3}\right)^t$	$2^{2t}$	$2^{3t}$	$2^{t/2}$	$2^{t/3}$
-1											
0											
1											
2											
3											

What generalizations can you make about the following "families" of functions:

$2^t, 3^t, 5^t$ :

$2^{2t}, 2^{3t}$ :

$2(2^t), -2(2^t)$ :

$2^{t/2}, 2^{t/3}$ :

$\left(\frac{1}{2}\right)^t, \left(\frac{1}{3}\right)^t$