

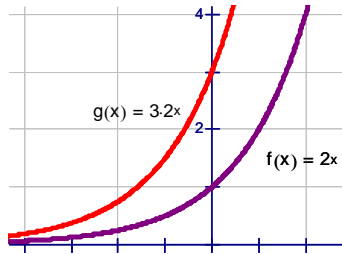
7-2: Properties of Exponential Functions

Algebra 2
Mr. Gallo

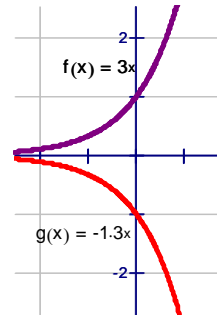
Families of Exponential Functions

Families of Exponential Functions	
Parent Function	$y = b^x$
Stretch ($ a > 1$) Compression (Shrink) ($0 < a < 1$) Reflection ($a < 0$) in x -axis	$y = ab^x$
Translations (Horizontal by h ; Vertical by k)	$y = b^{(x-h)} + k$
All transformations combined	$y = ab^{(x-h)} + k$

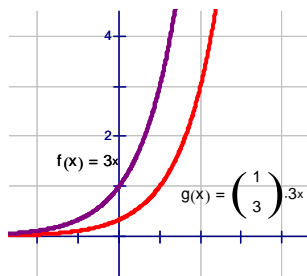
Families of Exponential Functions



Stretch
($|a| > 1$)

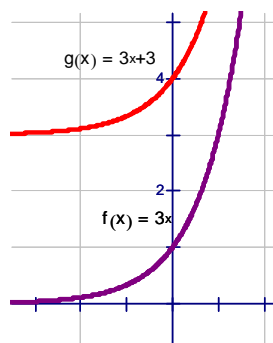


Reflection
($a < 0$)

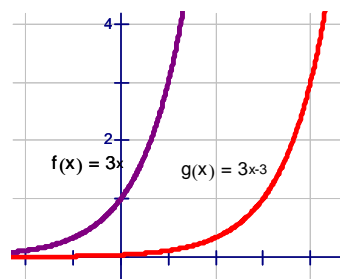


Compression
($0 < |a| < 1$)

Families of Exponential Functions



Vertical
Translation
 $y = b^x + k$



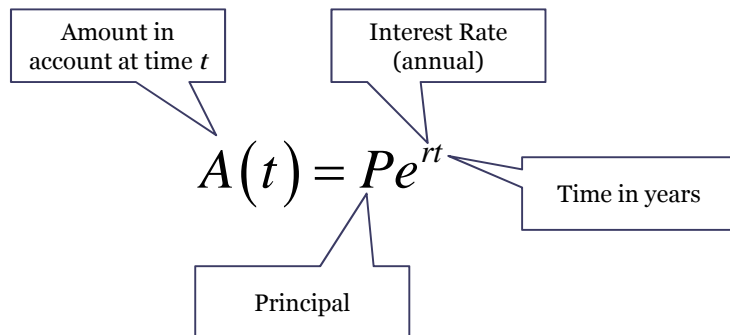
Horizontal
Translation
 $y = b^{x-h}$

All Transformations combined gives the form: $y = ab^{x-h} + k$

Natural Base Exponential Functions

- Have ***e*** for a base
- ***e***
 - Irrational number
 - $e \approx 2.71828$
 - Is an asymptote for graph of $y = \left(1 + \frac{1}{x}\right)^x$
- Functions have same properties as other exponential functions.
 - Has the form $y = e^x$

Continuously Compounded Interest



You have \$1500 in a bank account that pays 4.5% annual interest compounded continuously. How much will you have in the account after 15 years? Round the answer to the nearest dollar.

$$P=1500 \quad r=.045 \quad t=15$$

$$A(t) = Pe^{rt}$$

$$A(t) = 15000e^{.045(15)}$$

$$A(t) \approx 2946.05$$

The account will have \$2946

Homework: p.447 #7, 11, 17-21 odd, 22, 23-27 odd,
28, 36, 37, 41