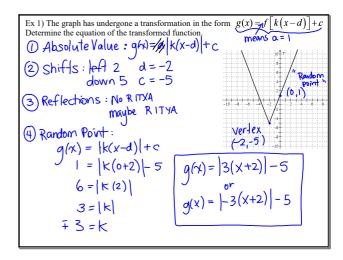
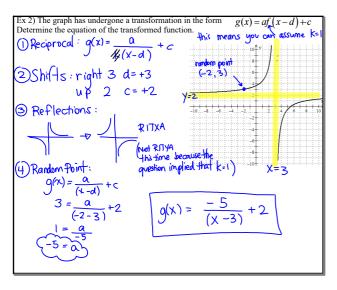
Lesson 5: Representing Functions with Equations

Given the graph of a function, you can determine the transformations that have happened to the parent function to determine its equation.

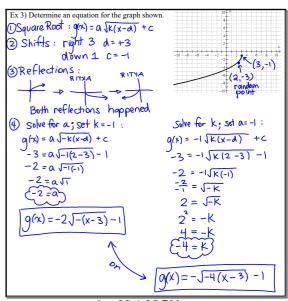
- 1. Identify the parent function by observing the shape of the graph
 - Each parent function has a distinct shape.
 - For exponential functions, this includes determining the base *B* if not given in the question.
- 2. Identify any translations (shifts) that have occurred.
 - It's often easiest to look at the vertex or the asymptotes, since those are not affected by dilations
 - Write the equation of the transformed function with the appropriate shifts.
- Identify any reflections that have occurred. Represent those in the equation.
 Finally, choose a point on the graph (not the vertex) and substitute its coordinates (x, y) into your equation to solve algebraically for either a or k. (usually identified in the question)



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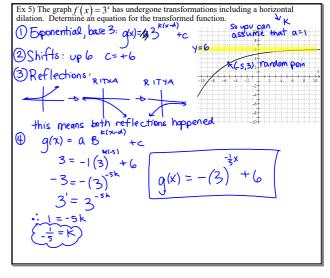


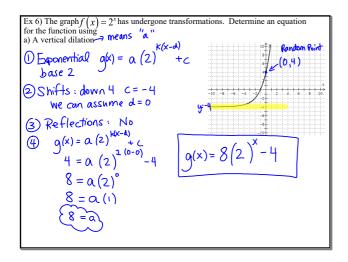
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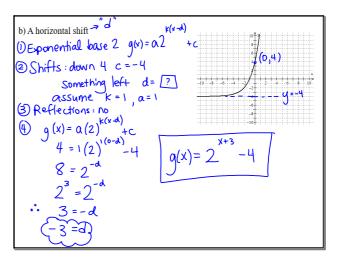
Determining the equation of an exponential function is especially challenging, since there are so many ways to write equivalent exponential functions using exponent laws.

Ex 4) Using exponent rules, find 3 equivalent functions for $f(x) = 4^x$

recall:
$$2^{2} = 4$$
 $g(x) = 2^{2x}$
 $16^{\frac{1}{2}} = 4$ $g(x) = 16$
 $\frac{1}{4}^{-1} = 4$ $g(x) = \frac{1}{4}^{-x}$







Apr 25-1:42 PM

May 3-10:51 AM

HW U4L5 Day 1:

- 1. handout (do this first)
- 2. p. 73 #18, 22
- 3. p. 252 #9, 10