

Assignment 4A: Graphing Exponential Functions

Answer the following problems with as much details, explanations, and work that is appropriate.

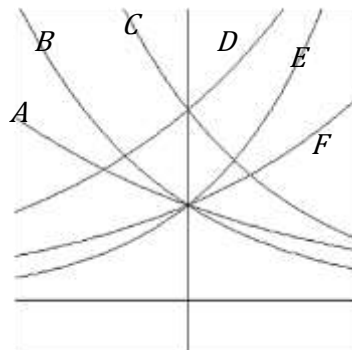
1. Match each function with one of the graphs below. Explain.

a. $g(x) = 2\left(\frac{3}{4}\right)^x$

b. $h(x) = 2\left(\frac{1}{2}\right)^x$

c. $f(x) = 4(1.28)^x$

2. Which function has the greatest growth rate?



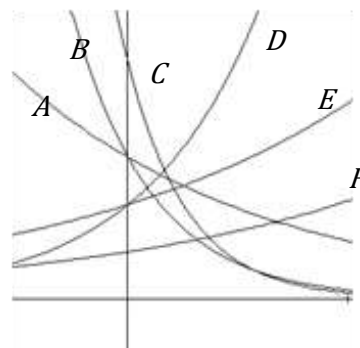
If all the graphs to the right have equations with form $f(x) = ab^x$,

3. Which graph has the smallest value for b ? Explain.

Which graph has the largest value for b ? Explain

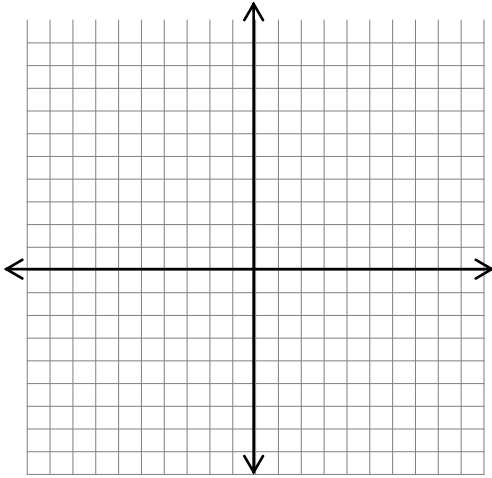
4. Which graph has the smallest value for a ? Explain.

Which graph has the largest value for a ? Explain

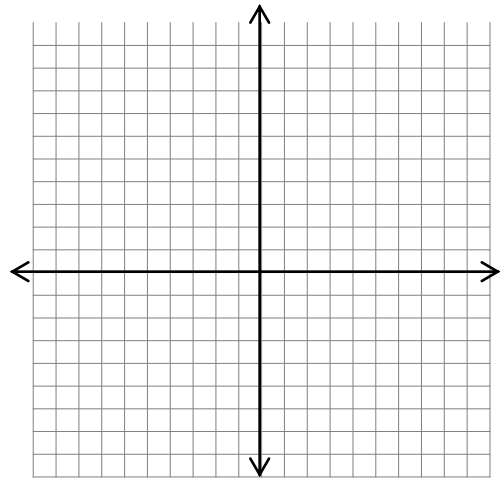


5. Sketch a graph of each of the following transformations of $f(x) = 2^x$

$$f(x) = 2^{x-2} - 8$$



$$g(x) = \frac{1}{4} \cdot 2^{-x}$$



6. Describe the long run behavior, as $x \rightarrow \infty$ and $x \rightarrow -\infty$ of $f(x) = -2(3)^{-x} - 1$

7. Use the graph of $f(x) = 3^x$ to describe the transformation that results in each function:

a) $f(x) = -(3)^{x+1} - 3$

b) $f(x) = \frac{1}{2}(3)^{-x} + 5$

8. Find a formula for the exponential function for the graph shown below.
(Hint: notice it passes through the points (0,5) and (1,1))

