

Part I

Use a graphing calculator to graph each exponential function and determine the following: whether the function is increasing or decreasing, the y -intercept, the y -coordinate at $x = 1$, and the range of the function. Sketch a copy of your calculator screen.

1. $f(x) = 2^x$

a. increasing or decreasing

b. y -intercept

c. $f(1)$

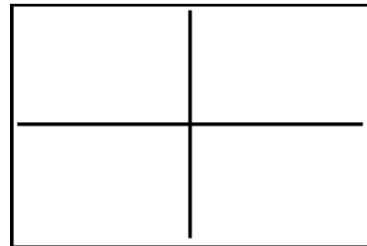


2. $g(x) = 4^x$

a. increasing or decreasing

b. y -intercept

c. $g(1)$

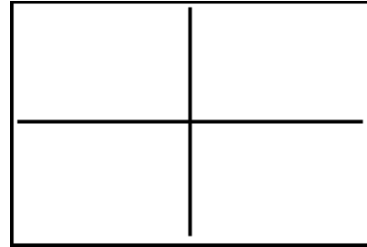


3. $h(x) = 10^x$

a. increasing or decreasing

b. y -intercept

c. $h(1)$



Part II

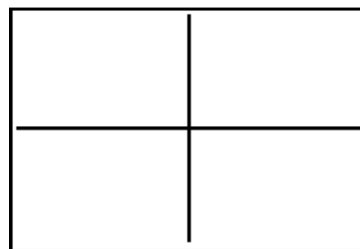
Use a graphing calculator to graph each exponential function and determine the following: whether the function is increasing or decreasing, the y -intercept, the y -coordinates at $x = 1$ and $x = -1$, and the range of the function. Sketch a copy of your calculator screen.

5. $f(x) = \left(\frac{1}{2}\right)^x$

a. increasing or decreasing

b. y -intercept

c. $f(1)$ and $f(-1)$

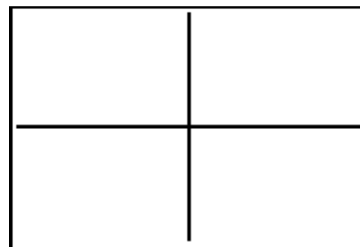


6. $g(x) = \left(\frac{1}{4}\right)^x$

a. increasing or decreasing

b. y -intercept

c. $g(1)$ and $g(-1)$



7. $h(x) = \left(\frac{1}{10}\right)^x$

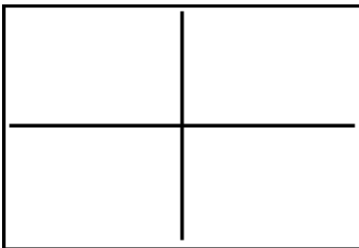
a. increasing or decreasing

b. y -intercept

c. $h(1)$ and $h(-1)$



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8. **Graph the above exponential functions f , g , and h on the same coordinate system. [Note: You should have 3 graphs in the same window.] Sketch a copy of your screen.**

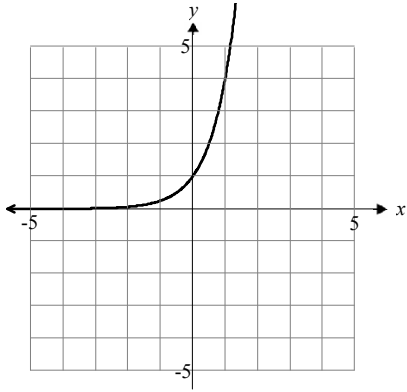


Use the results from Problems 5-7 and the graph just completed to describe the relationship of the graphs of exponential functions $f(x) = b^x$ for any real number $0 < b < 1$. Include in your description information about whether the functions are increasing or decreasing, the y -intercept, how to determine the value of the functions at $x = 1$ and $x = -1$, and the range of the functions.

Part III

Given the graph of an exponential function, determine the base of the function and write its equation.

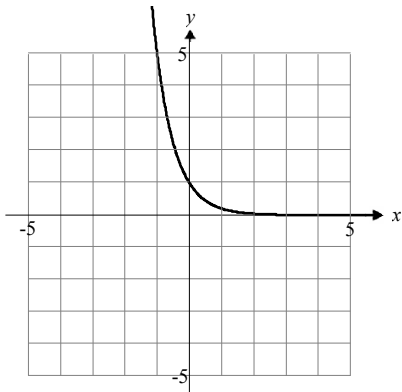
9.



a. Base:

b. Equation:

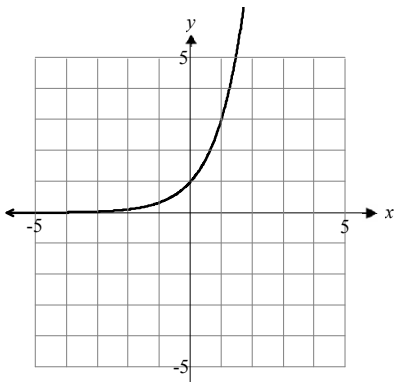
10.



a. Base:

b. Equation:

11.



a. Base:

b. Equation:
