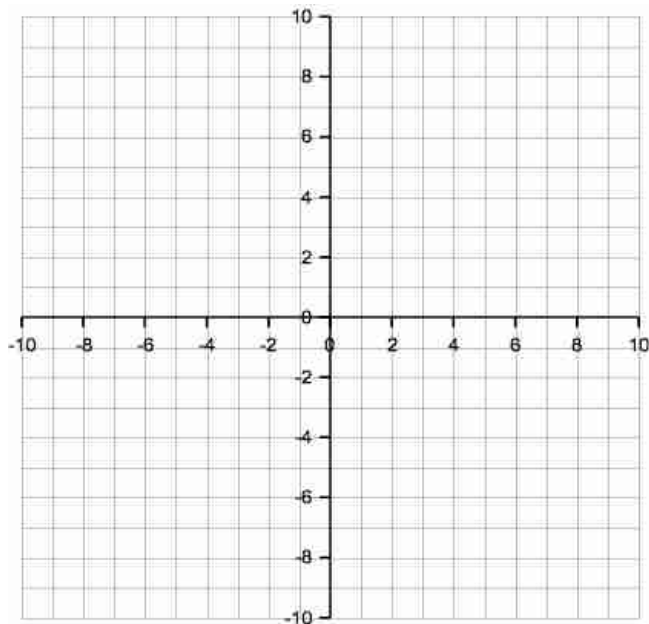


Exploring Exponential Functions

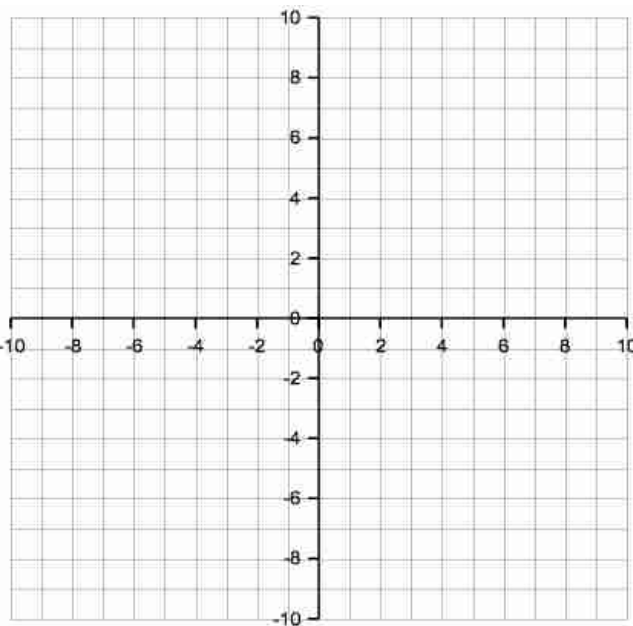
1.

a) Graph each of the following equations.

$$y = 2\left(\frac{1}{2}\right)^{x-3} - 4$$



$$y = 2(2)^{-(x-3)} - 4$$



b) Are there any similarities between the graphs?

c) Use your knowledge of exponent laws to show why this is the case.

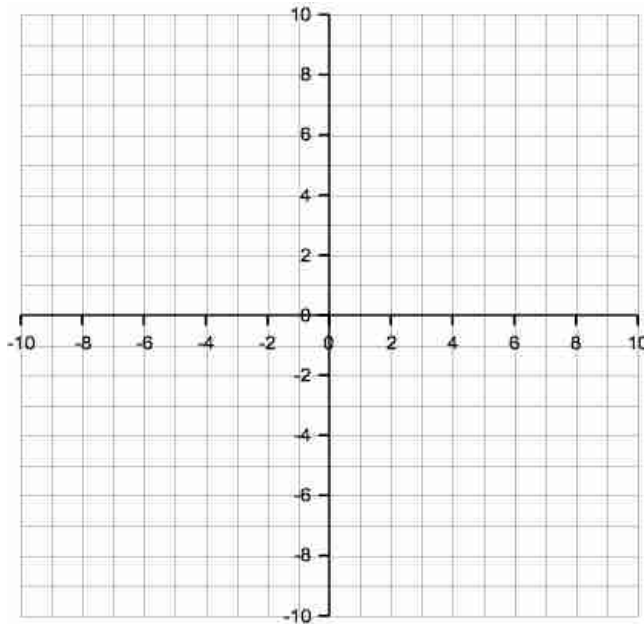
d) How would the graphs of $y = \left(\frac{1}{4}\right)^{x-7} + 12$ compare to the graph of $y = 4^{-(x-7)} + 12$?

e) Write an **equivalent exponential equation** for $y = \left(\frac{1}{9}\right)^{x+19} - 8$.

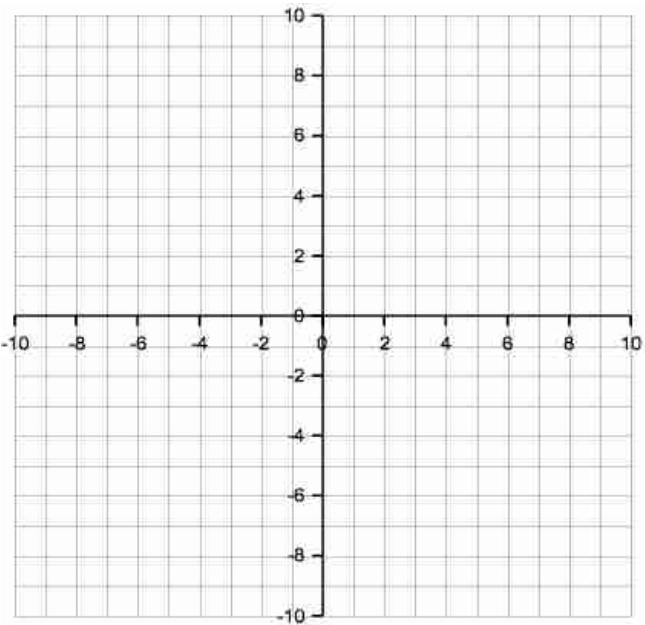
2.

a) Graph each of the following equations.

$$y = \frac{1}{4}(2)^{x+5} - 8$$



$$y = 2^{x+3} - 8$$



b) Are there any similarities between the graphs?

c) Use your knowledge of exponent laws to show why this is the case.

d) How would the graphs of $y = \frac{1}{8}\left(\frac{1}{2}\right)^{x+5}$ compare to the graph of $y = \left(\frac{1}{2}\right)^{x+8}$?

e) Write an **equivalent exponential equation** for $y = \frac{1}{16}(2)^{x-6} + 10$.