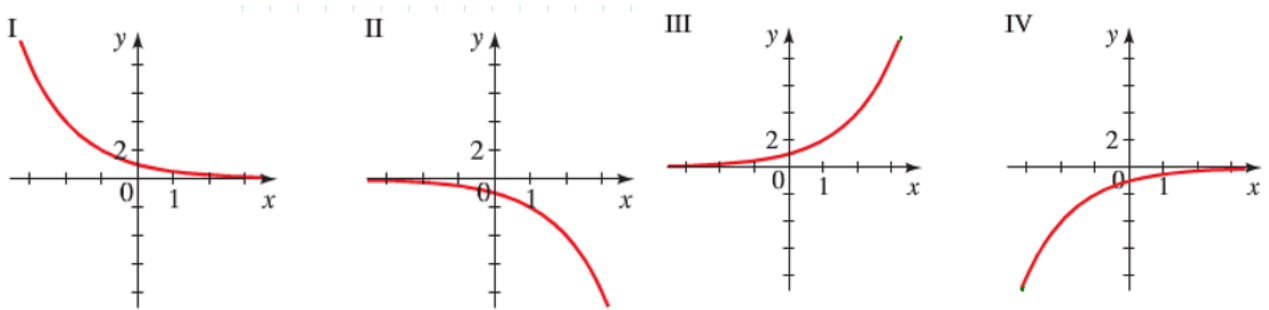


**Concept Check:**

- The graph of  $f(x) = a^{-x}$  is the same as that of  $g(x) = (\quad)^x$ .
- If  $a > 1$ , then the graph of  $f(x) = a^x$  is \_\_\_\_\_ from left to right.  
If  $0 < a < 1$ , then the graph of  $g(x) = a^x$  is \_\_\_\_\_ from left to right.

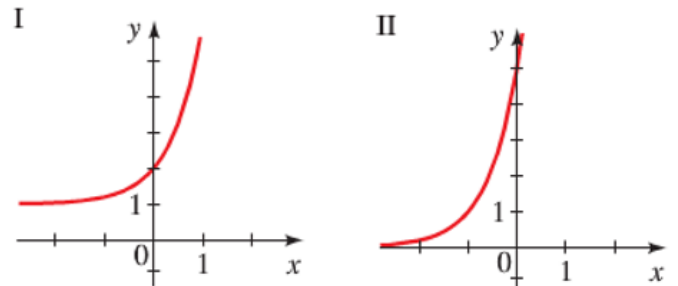
- Match the exponential function with its graph.

- a)  $f(x) = 2^x$       b)  $f(x) = 2^{-x}$       c)  $f(x) = -2^x$       d)  $f(x) = -2^{-x}$



- Match the exponential function with its graph.

- a)  $f(x) = 5^{x+1}$   
b)  $f(x) = 5^x + 1$



- Graph the function by transforming the graph of a basic exponential function. Then state the domain, range and the equation of asymptote of the given function.

- a)  $f(x) = 1 - 3^x$       b)  $f(x) = \left(\frac{1}{2}\right)^{x+4} - 1$   
c)  $f(x) = 2^{-x} + 3$       d)  $f(x) = 2^{|x|}$

- State the domain in interval notation.

- a)  $f(x) = \frac{e^{|x|}}{1+e^x}$       b)  $f(x) = -\sqrt{1 - e^x}$

- Mouse Population** A certain breed of mouse was introduced onto a small island with an initial population of 320 mice, and scientists estimate that the mouse population is doubling every year.

- (a) Find a function that models the number of mice after  $t$  years.  
(b) Estimate the mouse population after 8 years.

- Growth of an Exponential Function** Suppose you are offered a job that lasts one month, and you are to be very well paid. Which of the following methods of payment is more profitable for you?

- (a) One million dollars at the end of the month  
(b) Two cents on the first day of the month, 4 cents on the second day, 8 cents on the third day, and, in general,  $2^n$  cents on the  $n$ th day