

1. Which of the following equations represent exponential growth? 1. \_\_\_\_\_

I.	$y = \frac{1}{3} \left( \frac{5}{10} \right)^{-x}$
II.	$y = \frac{1}{2} \left( \frac{8}{3} \right)^{2x}$
III.	$y = 2(3)^{-2x}$
IV.	$y = 4 \left( \frac{9}{4} \right)^x$

2. Describe the end behavior of the function  $f(x) = (2)^{x-3} + 4$ . 2. \_\_\_\_\_

- a. as  $x \rightarrow -\infty, f(x) \rightarrow +\infty$  and as  $x \rightarrow +\infty, f(x) \rightarrow 4$
- b. as  $x \rightarrow -\infty, f(x) \rightarrow 4$  and as  $x \rightarrow +\infty, f(x) \rightarrow +\infty$
- c. as  $x \rightarrow -\infty, f(x) \rightarrow -\infty$  and as  $x \rightarrow +\infty, f(x) \rightarrow +\infty$
- d. as  $x \rightarrow -\infty, f(x) \rightarrow 3$  and as  $x \rightarrow +\infty, f(x) \rightarrow +\infty$

3. Describe the end behavior of the function  $f(x) = \log_2(x-4) + 3$ . 3. \_\_\_\_\_

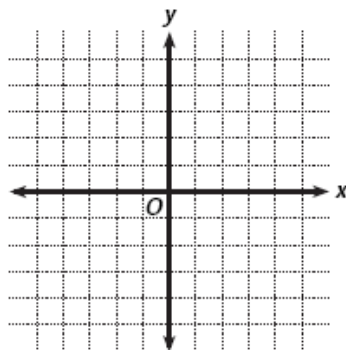
- a. as  $x \rightarrow 4, f(x) \rightarrow -\infty$  and as  $x \rightarrow +\infty, f(x) \rightarrow +\infty$
- b. as  $x \rightarrow 4, f(x) \rightarrow +\infty$  and as  $x \rightarrow +\infty, f(x) \rightarrow +\infty$
- c. as  $x \rightarrow -\infty, f(x) \rightarrow -\infty$  and as  $x \rightarrow +\infty, f(x) \rightarrow +\infty$
- d. as  $x \rightarrow 3, f(x) \rightarrow -\infty$  and as  $x \rightarrow +\infty, f(x) \rightarrow +\infty$

4. When evaluating the function  $f(x) = 3 \cdot 5^{x+2} - 7$  for any real number  $x$ , what must be true about the value of  $f(x)$ ? 4. \_\_\_\_\_

- a. The value of  $f(x)$  is always greater than -2
- b. The value of  $f(x)$  is always greater than -7
- c. The value of  $f(x)$  is always positive
- d. The value of  $f(x)$  is always negative

For questions 5 - 6, graph the following functions without using a graphing calculator.

5.  $y = 3(4)^{x-1} + 2$

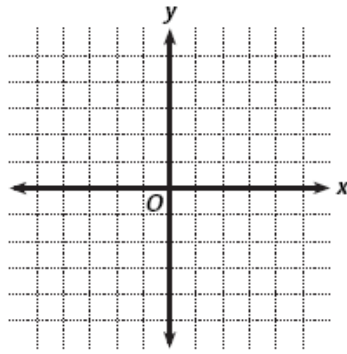


5. H.A.:

End Behavior:

Starting Pt:

6.  $y = \log_3(x+1) - 2$



6. V.A.:

End Behavior:

Starting Pt.:

For questions 7 – 8, find the inverse of the following exponential equations.

7.  $y = 4^x - 1$

7. \_\_\_\_\_

8.  $y = 4^{x-1}$

8. \_\_\_\_\_

9. The graph of which function is stretched vertically by a factor of four and translated two units left from the graph of the parent function.

9. \_\_\_\_\_

a.  $y = 4\log_3(x+2)$

b.  $y = 4^{x+2}$

c.  $y = \log_3(4x+2)$

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

10. The graph of which function is stretched vertically by a factor of three and translated five units right and two units down from the graph of the parent function.

10. \_\_\_\_\_

a.  $y = 3\log_4(x+5) - 2$

b.  $y = 3(4)^{x-5} - 2$

c.  $y = \log_4(3x-5) - 2$

d.  $y = 3^{x-5} - 2$