Name: _____

F.IF.C.7: Graphing Exponential Functions 2

1 If the function $g(x) = ab^x$ represents exponential growth, which statement about $g(x)$ is *false*?
1) $a > 0$ and $b > 1$
2) The y-intercept is $(0, a)$.
3) The asymptote is $y = 0$.
4) The x-intercept is $(b, 0)$.

2 Which statement about the graph of the equation $y = e^x$ is *not* true?
1) It is asymptotic to the x-axis.
2) The domain is the set of all real numbers.
3) It lies in Quadrants I and II.
4) It passes through the point $(e, 1)$.

3 The graph of $y = 2^x - 4$ is positive on which interval?
1) $(-\infty, \infty)$
2) $(2, \infty)$
3) $(0, \infty)$
4) $(-4, \infty)$

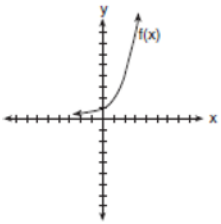
4 Given $f(x) = 3^{x-1} + 2$, as $x \to -\infty$
1) $f(x) \to -1$
2) $f(x) \to 0$
3) $f(x) \to 2$
4) $f(x) \to -\infty$

5 If $y = 2^x$ and $y = \left(\frac{1}{2}\right)^x$ are graphed on the same set of coordinate axes, which transformation would map one of these curves onto the other?
1) reflection in the y-axis
2) reflection in the x-axis
3) reflection in the line $y = x$
4) reflection in the origin

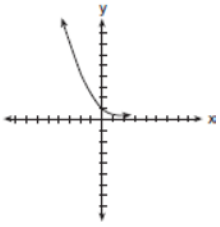
6 If $a > 0$, which function represents the reflection of $y = a^x$ in the y-axis?
1) $y = -a^x$
2) $y = \left(\frac{1}{a}\right)^x$
3) $y = \left(\frac{1}{a}\right)^{-x}$
4) $x = a^y$

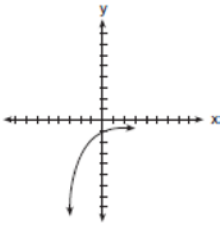
7 Describe the transformation applied to the graph of $p(x) = 2^x$ that forms the new function $q(x) = 2^{x-3} + 4$.

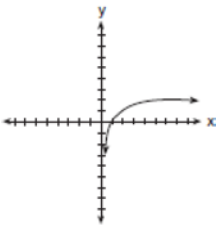
8 The graph of f(x) is shown in the accompanying diagram.



Which graph represents $f(x)_{r_{x-\text{axis}} \circ r_{y-\text{axis}}}$?

1)


2)


3)


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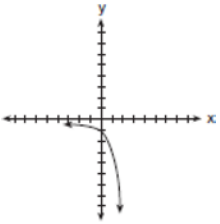

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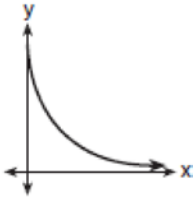
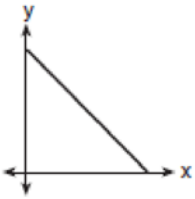
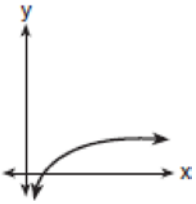
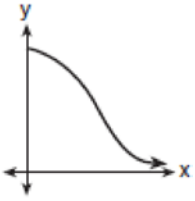
9 The strength of a medication over time is represented by the equation $y = 200(1.5)^{-x}$, where x represents the number of hours since the medication was taken and y represents the number of micrograms per millimeter left in the blood. Which graph best represents this relationship?

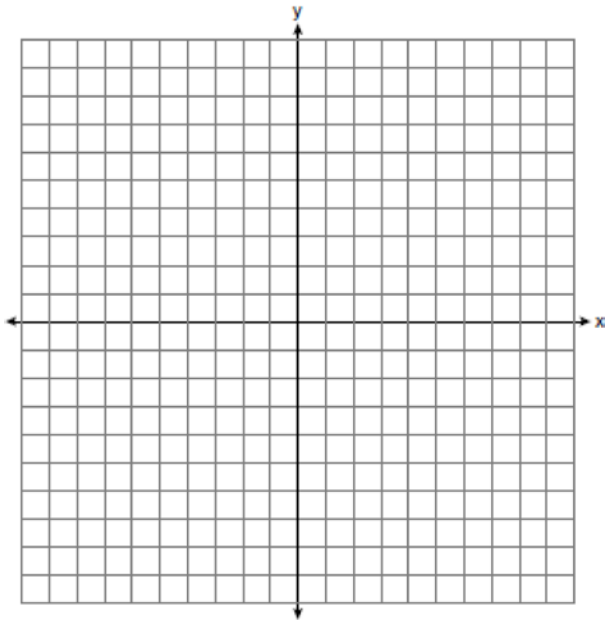
1) 

2) 

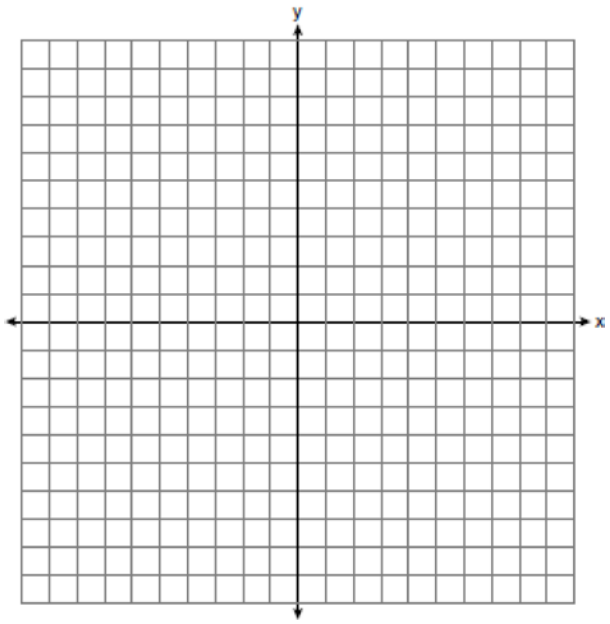
3) 

4) 

10 The graph of the equation $y = \left(\frac{1}{2}\right)^x$ has an asymptote. On the grid below, sketch the graph of $y = \left(\frac{1}{2}\right)^x$ and write the equation of this asymptote.



11 On the axes below, for $-2 \le x \le 2$, graph $y = 2^{x+1} - 3$.



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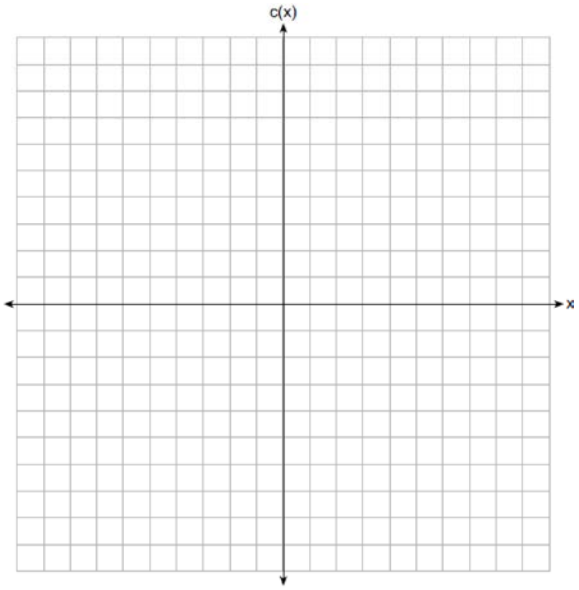
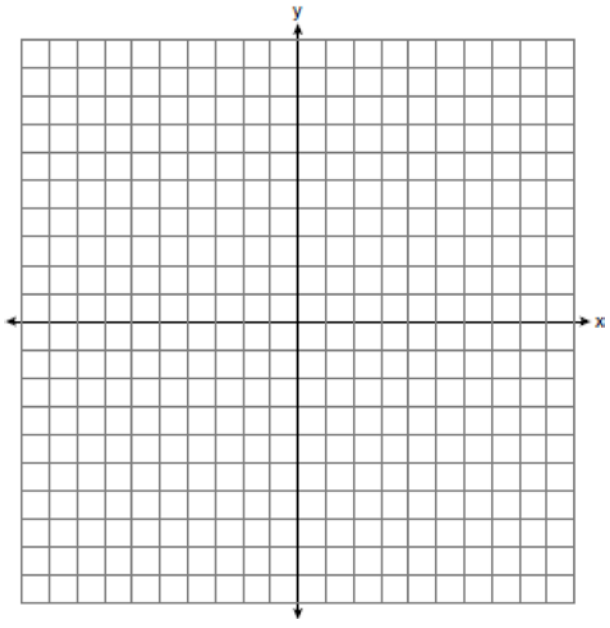
12 Graph $c(x) = -9(3)^{x-4} + 2$ on the axes below.

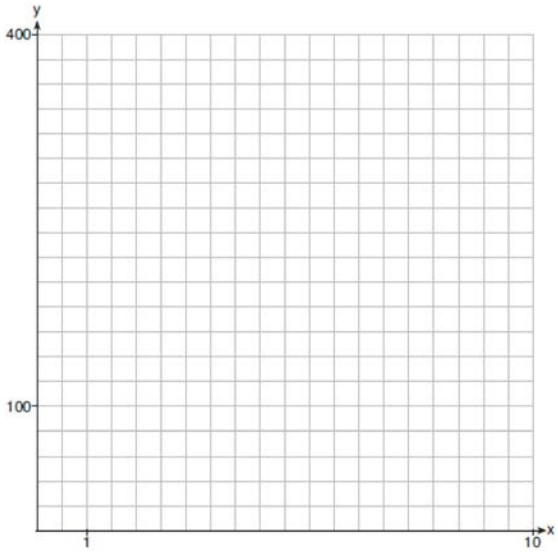


Describe the end behavior of $c(x)$ as x approaches positive infinity. Describe the end behavior of $c(x)$ as x approaches negative infinity.

13 On the axes below, graph $y = 3.2(1.8)^{x}$.



14 Graph $y = 400(.85)^{2x} - 6$ on the set of axes below.



F.IF.C.7: Graphing Exponential Functions 2
Answer Section

1 ANS: 4
There is no x-intercept.

REF: 011823aii
2 ANS: 4 REF: 011219a2
3 ANS: 2
$2^x - 4 > 0$

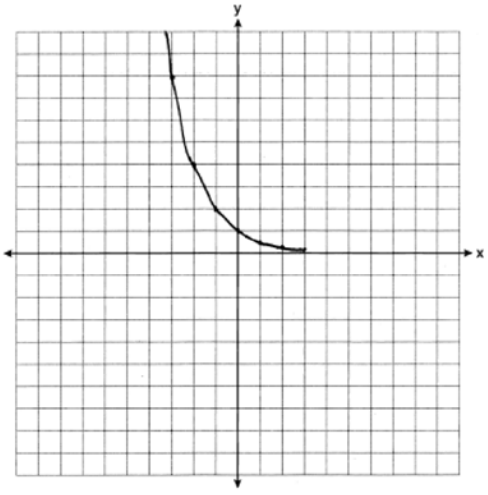
$2^x > 4$

$x > 2$

REF: 082402aii
4 ANS: 3 REF: 082214aii
5 ANS: 1
$2^{-x} = (\frac{1}{2})^x$ and $(\frac{1}{2})^{-x} = 2^x$

REF: fall9908b
6 ANS: 2 REF: 080919b
7 ANS:
Translation 3 units right and 4 units up

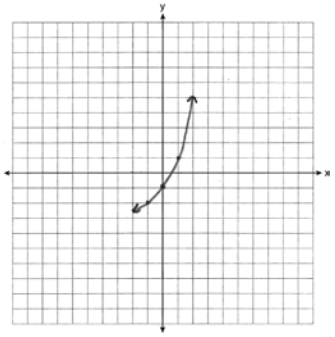
REF: 012027aii
8 ANS: 2 REF: 080115b
9 ANS: 1 REF: 080304b
10 ANS:



$y = 0$

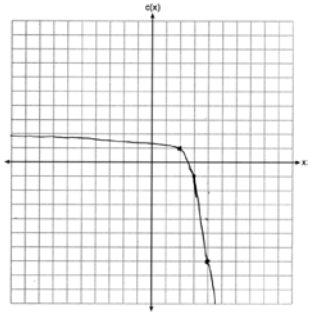
REF: 061031a2

11 ANS:



REF: 011233a2

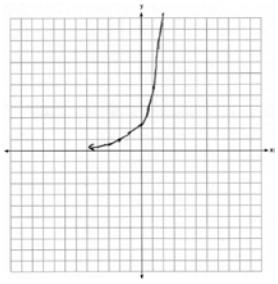
12 ANS:



As $x \to \infty, c(x) \to -\infty$. As $x \to -\infty, c(x) \to 2$.

REF: 012335aii

13 ANS:



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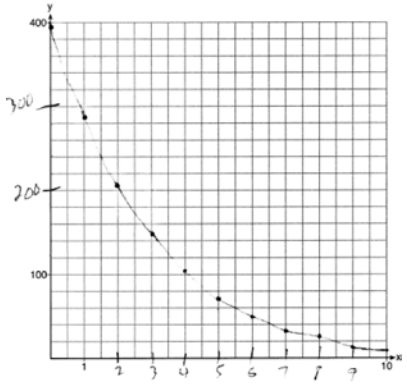
14 ANS:



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