Name _____ Date _____
Mr. Schlansky Algebra II

Exponential and Logarithmic Graphs Multiple Choice

1. Which statement about the graph of $c(x) = \log_6 x$ is *false*?
1) The asymptote has equation $y = 0$.
2) The graph has no y-intercept.
3) The domain is the set of positive reals.
4) The range is the set of all real numbers.

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 $(e, 1)$.

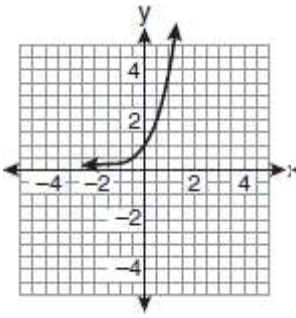
3. Which statement is true about the graph of $f(x) = \left(\frac{1}{8}\right)^x$?
1) The graph is always increasing.
2) The graph is always decreasing.
3) The graph passes through $(1, 0)$.
4) The graph has an asymptote, $x = 0$.

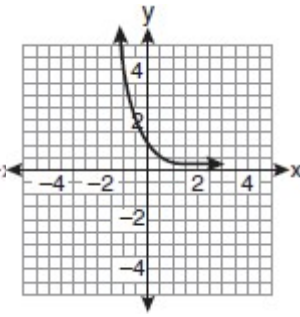
4. Which statement is *true* regarding the equation $f(x) = \log_7 x$?
1) It is always increasing
2) The graph passes through $(0,1)$
3) The domain is all real numbers
4) The equation of the asymptote is $y = 0$

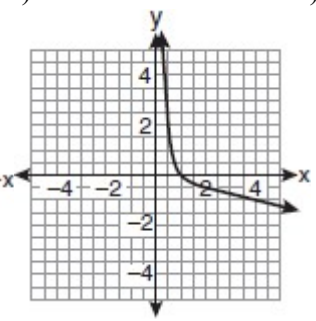
5. Given the equation $f(x) = \pi^x$, which of the following statements is true?
1) The graph passes through $(\pi,1)$
2) The domain is $[0, \infty)$
3) The graph passes through $(0,1)$
4) The range is all real numbers

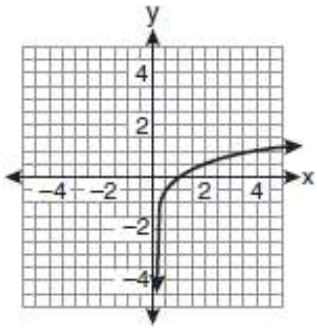
6. Which statement is *false* regarding the equation $f(x) = \ln x$?
1) It passes through $(1, 0)$
2) It is always decreasing
3) The equation of the asymptote is $x = 0$
4) Its range is $(-\infty, \infty)$

7. If a function is defined by the equation $f(x) = 4^x$, which graph represents the inverse of this function?

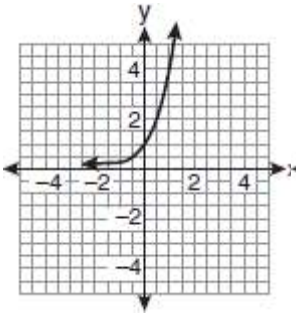
1) 

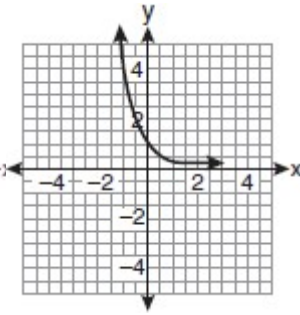
2) 

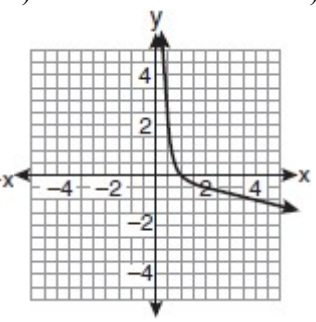
3) 

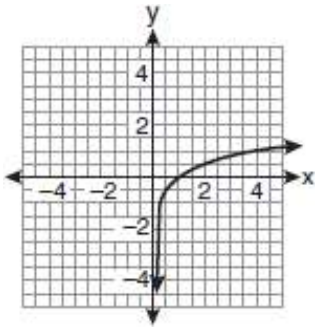
4) 

8. If a function is defined by the equation $f(x) = \log_4 x$, which graph represents the inverse of this function?

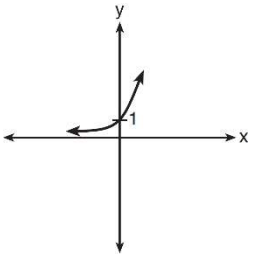
1) 

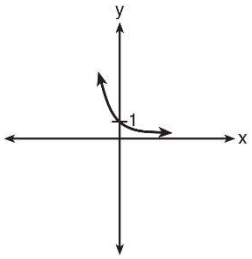
2) 

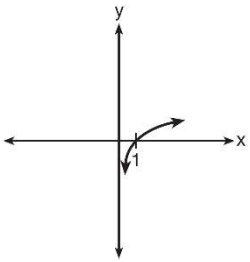
3) 

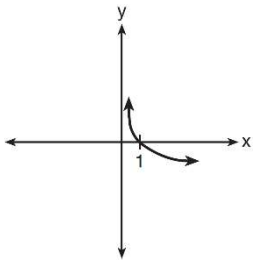
4) 

9. Which sketch shows the inverse of $y = a^x$, where $a > 1$?

1) 

2) 

3) 

4) 

10. What is the inverse of the function $y = \log_3 x$?

1) $y = x^3$ 2) $y = \log_x 3$ 3) $y = 3^x$ 4) $x = 3^y$

11. If $f(x) = a^x$ where $a > 1$, then the inverse of the function is

1) $f^{-1}(x) = \log_x a$
2) $f^{-1}(x) = a \log x$
3) $f^{-1}(x) = \log_a x$
4) $f^{-1}(x) = x \log a$

12. The asymptote of the graph of $f(x) = 5\log(x+4)$ is

1) $y = 6$
2) $x = -4$
3) $x = 4$
4) $y = 5$

13. The asymptote of the graph of $j(x) = 2e^{x-4} - 1$ is

1) $x = 4$
2) $x = -4$
3) $y = -1$
4) $y = 2$

14. The asymptote of the graph of $e(x) = \log_3(x-5) + 1$ is

1) $y = 1$
2) $x = 1$
3) $y = 5$
4) $x = 1$

15. The asymptote of the graph of $m(x) = -3(2)^{x+1} - 4$ is

1) $x = -1$
2) $x = 3$
3) $y = -4$
4) $y = -3$

16. For the equation $f(x) = 2^{x-3} + 1$, as $x \to -\infty$

1) $f(x) \to -\infty$
2) $f(x) \to 1$
3) $f(x) \to \infty$
4) $f(x) \to 3$

17. For the equation $f(x) = \log_2(x-4) + 3$, as $x \to 4$

1) $f(x) \to -\infty$
2) $f(x) \to 3$
3) $f(x) \to \infty$
4) $f(x) \to 4$

18. For the equation $f(x) = -\log_3(x+1) - 2$, as $x \to \infty$

1) $f(x) \to -\infty$
2) $f(x) \to -1$
3) $f(x) \to \infty$
4) $f(x) \to -2$

19. 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) $f(x) \to -\infty$

20. For the equation $f(x) = 3\ln(x-4) + 1$, $f(x) \to -\infty$ as

1) $x \to 4$
2) $x \to 1$
3) $x \to \infty$
4) $x \to -\infty$