Name _____   Date _____
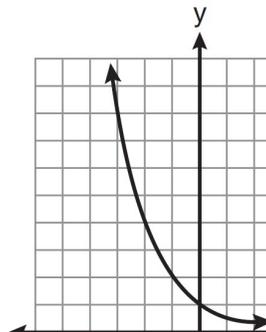Mr. Schlansky   Algebra II

Logarithmic and Exponential Graphs Practice
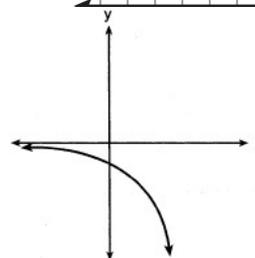
1. Which equation is represented by the graph below?
1) $y = 5^x$
2) $y = 0.5^x$
3) $y = 5^{-x}$
4) $y = 0.5^{-x}$

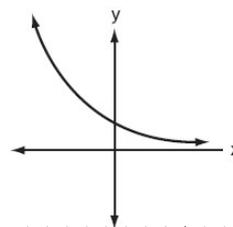2. Which equation is represented by the accompanying graph?

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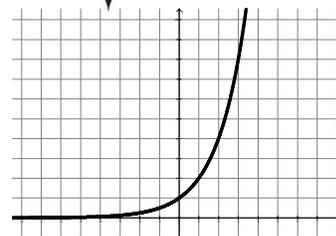(2) $y = -2^x$ (4) $y = x^2 - 2$

3. Which equation best represents the accompanying graph?

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

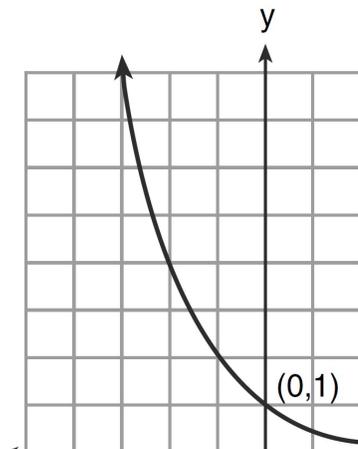4. Which equation best represents the accompanying graph?
(1) $y = 2^x$ (3) $y = 2^{-x}$
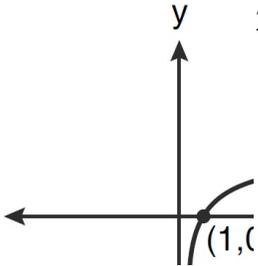(2) $y = -2^x$ (4) $y = x^2 - 2$

5. What is the equation of the graph shown below?
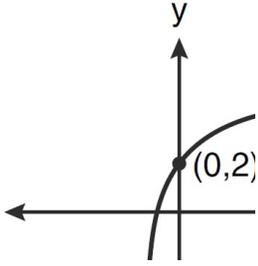
1) $y = 2^x$
2) $y = 2^{-x}$
3) $x = 2^y$
4) $x = 2^{-y}$

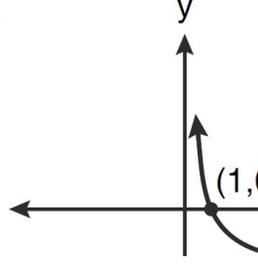(0,1)

6. Which graph represents the function $\log_2 x = y$?
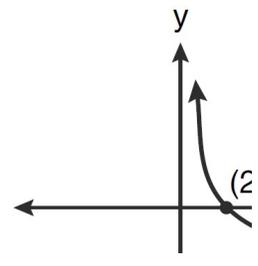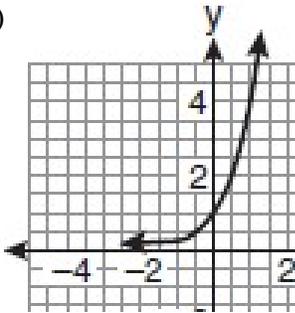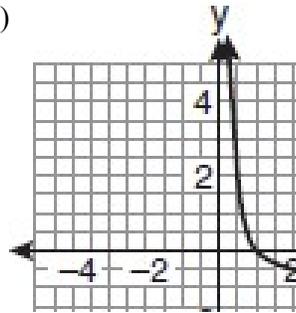
1)

(1,0

2)

(0,2)

3)

(1,0

4)

(2

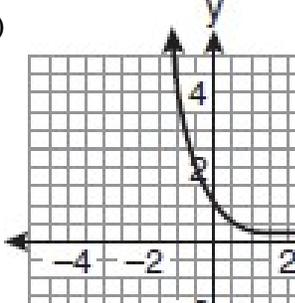7. If a function is defined by the equation $f(x) = 4^x$, which graph represents the inverse of this function?
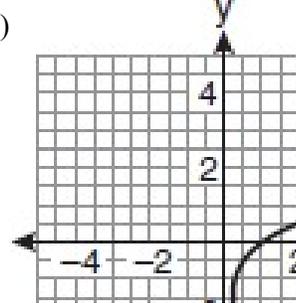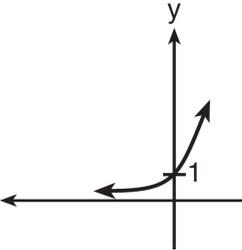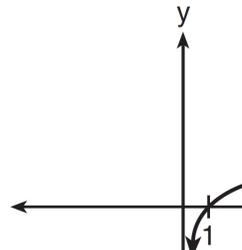
1)

3)

2)

4)

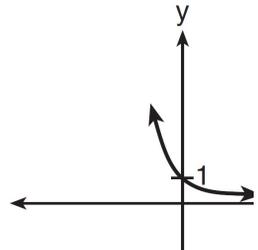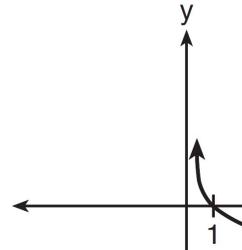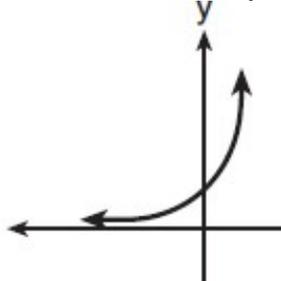8. Which sketch shows the inverse of $y = a^x$, where $a > 1$?
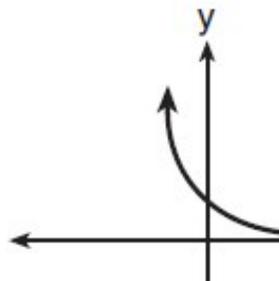
1)
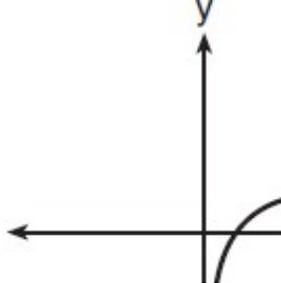

3)

2)

4)

9. Which sketch best represents the graph of $x = 3^y$?

1)

3)

2)

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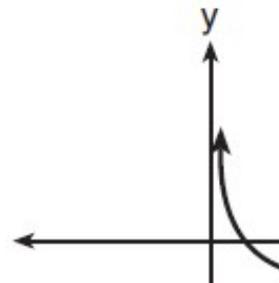
10. Which statement about the graph of $c(x) = \log_6 x$ is *false*?
1) The asymptote has equation $y = 0$.
2) The graph has no y-intercept.
3) The domain is the set of positive reals.
4) The range is the set of all real numbers.

11. Theresa is comparing the graphs of $y = 2^x$ and $y = 5^x$. Which statement is true?
1) The y-intercept of $y = 2^x$ is $(0,2)$, and the y-intercept of $y = 5^x$ is $(0,5)$.
2) Both graphs have a y-intercept of $(0,1)$, and $y = 2^x$ is steeper for $x > 0$.
3) Both graphs have a y-intercept of $(0,1)$, and $y = 5^x$ is steeper for $x > 0$.
4) Neither graph has a y-intercept.

12. 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 $(e, 1)$.

13. Which statement is true about the graph of $f(x) = \left|\begin{array}{c}?\\ \cdot\end{array}\right.$?

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, $x = 0$.

14. 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 $(b, 0)$.

15. 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

16. Which statement is false regarding the equation $f(x) = \log_a x$?
1) The range is $[0, \infty)$
2) The graph passes through $(0, 1)$
3) The domain is all real numbers
4) The equation of the asymptote is $x = 0$

17. Which of the following equations does not have an asymptote of $y = 0$?
1) $f(x) = -a^x$
2) $f(x) = a^{x-4}$
3) $f(x) = a^x - 3$
4) $f(x) = a^{2x}$