Math 12 QUIZ 12 **Graphs of Exponents and Logarithms** Name: _____

1.

Determine an equation of the asymptote of $f(x) = 2^{x-1} + 3$.

A. $y = 2$
B. $y = -2$
C. $y = 3$
D. $y = -3$

2.

Determine an equation of the asymptote of $y = 2\log_3(x+4) - 5$.

A. $x = -5$
B. $x = -4$
C. $y = -5$
D. $y = -4$

3.

Given $f(x) = 2^x + 5$, determine $f^{-1}(x)$, the inverse of $f(x)$.

$x = 2^y + 5$
$x - 5 = 2^y$
$\log_2(x-5) = y$

A. $f^{-1}(x) = 5 + \log_2 x$
B. $f^{-1}(x) = -5 + \log_2 x$
C. $f^{-1}(x) = \log_2(x+5)$
D. $f^{-1}(x) = \log_2(x-5)$

4.

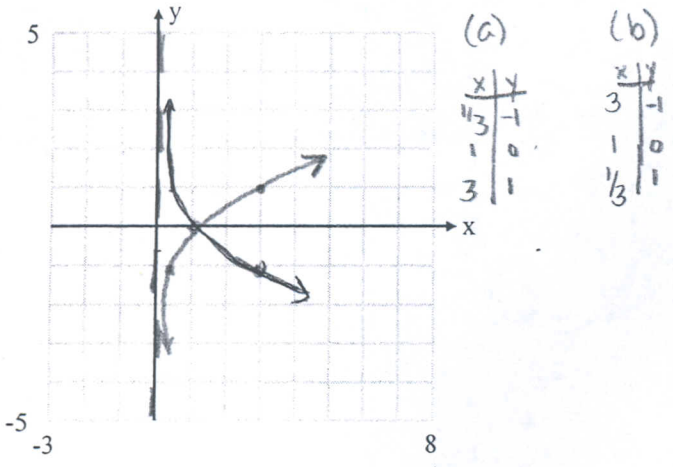
If the point (2, 9) is on the graph of $y = a^x$, what point must be on the graph of $y = \log_a x$

$x = \log_a y$
$(2, 9)$
$y = \log_a x$
$(9, 2)$

A. $\left(2, \frac{1}{9}\right)$
B. (2, 9)
C. (9, −2)
D. (9, 2)

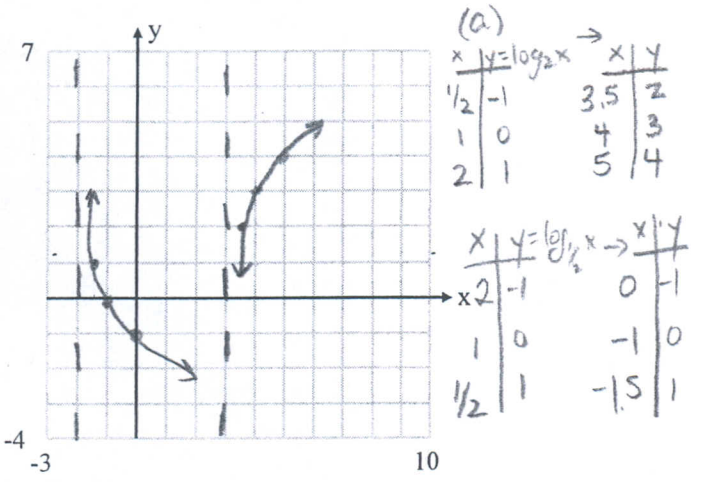
5. Graph on the same grid (a) $y = \log_3 x$

(b) $y = \log_{\frac{1}{3}} x$



6. Graph on the same grid: (a) $y = \log_2(x-3) + 3$

(b) $y = \log_{\frac{1}{2}}(x+2)$



7. For the function graphed,

(a) sketch the inverse

(b) find an equation for the original function: $y = 4^x - 4$

(c) find an equation for the inverse: $y = \log_4(x+4)$

$x = 4^y - 4$

$x + 4 = 4^y$