Name _____ **CHAPTER 5 TEST**

1. For the given functions *f* and *g*, find the domain of $(f \circ g)(x)$.

$f(x) = \sqrt{x-1}$

$g(x) = 2x - 3$

2. For the given functions *f* and *g*, find the given composite function.

$f(x) = \dfrac{3}{x-4}$

$g(x) = \dfrac{3}{x}$

$(g \circ f)(x)$

3. Decide whether or not the functions are inverses of each other.

$f(x) = 3x - 4$

$g(x) = \dfrac{x+3}{4}$

4. Find the inverse function of *f*. State the domain and range of *f*.

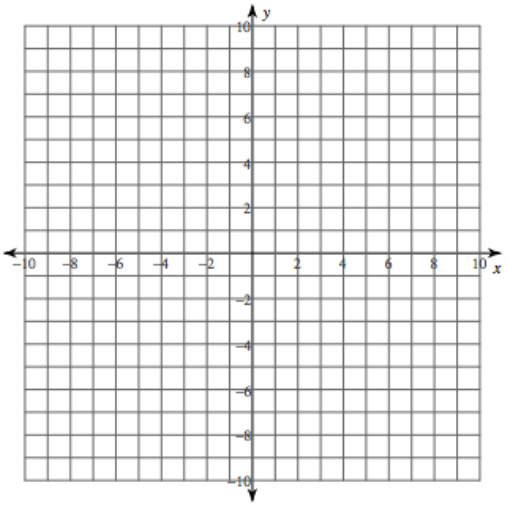
$f(x) = \dfrac{3x-2}{x+5}$

5. Solve.

$3^3 \bullet 9^{-2p+1} = 1$

6. Sketch a graph of the function.

$f(x) = 3^{x+1}$

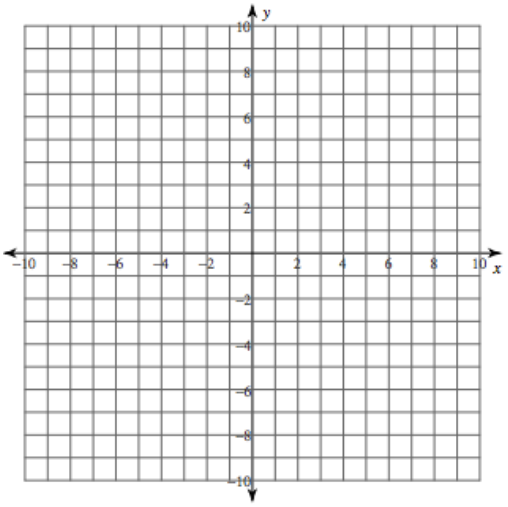


7. Solve.

$\log_3(10 - 4b) = 2$

8. Identify the domain and range. Sketch the graph.

$f(x) = \ln(x + 5) - 2$



9. Use the properties of logarithms to find the exact value of the expression without using a calculator.
$\log_4 24 - \log_4 6$

10. Write as the sum and/or difference of logarithms. Express powers as factors.
$\log_3\left(\frac{x^4}{y^8}\right)$

11. Express as a single logarithm.
$2\log_3 x + \log_3 y$

12. Use the change-of-base formula and a calculator to evaluate the logarithm. Round the answer to three decimal places.
$\log_2 12$

Solve.

13. $e^{2x} - 3e^x - 4 = 0$

14. $2^{x+2} = 6^{2x-5}$