Exponential and Log Functions Worksheet

Exponential Functions and Inverse of a Function

1. Find the inverse of $f(x) = 2x - 3$

2. Find the inverse of $g(x) = \dfrac{x-4}{x-2}$

Mini Lecture: If $f(x) = 3^x$ and $g(x) = \left(\dfrac{1}{2}\right)^x$ find,

  a. $g(0)$ b. $f(-3)$ c. $f(2) + g(-2)$

  d. Graph $y = 2^x$ e. Graph $y = 3^x$ and its inverse

3. Graph $y = x^2 - 2$ and find its inverse and graph it.

Properties of Logarithms

1. Expand $\log_5 \dfrac{3xy}{z}$

2. Expand $\log_2 \dfrac{x^4}{\sqrt{y \cdot z^3}}$

3. Simplify $2\log_{10} a + 3\log_{10} b - \dfrac{1}{3}\log_{10} c$

Common Logs and Natural Logs

1. Find $\log 2,760$

2. Find $\log 0.0391$

3. Solve $\log x = -2.4179$

4. Simplify.

a. e^0 b. e^1 c. $\ln e$ d. $\ln 1$

e. $\ln e^3$ f. $\ln e^{-4}$ g. $\ln e^t$

5. If $\ln 2 = 0.6931$ and $\ln 3 = 1.0986$, find

a. $\ln 6$ b. $\ln 0.5$ c. $\ln 8$

Equations Containing Logs

1. Solve $\log_3 x = -2$

2. Solve $\log_x 4 = 3$

3. Solve $\log_2(x+2) + \log_2 x = 3$

4. Solve $\log_8 4 = x$

Graphing Exponential and Logarithmic Functions

1. Sketch the graph of the exponential function $y = 2^x$

2. Sketch the graph of $y = \left(\dfrac{1}{3}\right)^x$

3. Graph $y = 2^x$ and its inverse $x = 2^y$

4. Graph $y = \log_2 x$