Exponential and Logarithmic Functions - Worksheet - 1

1. Circle the following that are Exponetial Functions

$f(x) = x^4$ $f(x) = 3^x$ $f(x) = -5^x$ $f(x) = (-6)^x$ $f(x) = 3^{4x}$ $f(x) = -x^{x+1}$ $f(x) = 6^{x+4}$

2. Evaluate the following exponential function

a. if $f(x) = 3^x$ then $f(4) =$

b. if $f(x) = 2^x$ then $f(8) =$

c. if $f(x) = -5^x$ then $f(3) =$

d. if $f(x) = 3^{x-2}$ then $f(4) =$

e. if $f(x) = (.5)^x$ then $f(6) =$

f. if $f(x) = e^x$ then $f(2) =$

3. Change the following functions from logarithmic form to exponential form.

a. $3 = \log_5 x$

b. $\log_3 x = 7$

c. $2 = \log_b 18$

d. $\log_3 8 = y$

4. Change the following functions from exponential form to logarithmic form.

a. $3 = 2^x$

b. $5 = 4^x$

c. $7 = 6^{2x}$

d. $6 = 5^{x+1}$

5. Evaluate the following logarithms

a. $\log_5 25$

b. $\log_3 9$

c. $\log_2 64$

d. $\log_{.5} 0.125$

e. $\log_2 \frac{1}{2}$

f. $\log_{.2} 25$

6. Expand the following logarithmic functions

a. $\log_b \left(x^4 \sqrt[3]{y} \right)$

b. $\log_3 \frac{\sqrt{x}}{7y^3}$

6. Condense the following logarithmic functions

a. $\log 16 - \log 3$

b. $\log_4 x - \log_4 2 - \frac{1}{2}\log_4 x$