

Homework Due Monday:

Chapter 12 Test on page 758 all problems except 1, 20, 21, and 26

1. Determine whether each function is one-to-one. Explain your reasoning.

a) $h = \{(-9, 14), (6, 8), (-11, 12), (15, 15)\}$	b)				
	Shape	Square	Triangle	Parallelogram	Rectangle
	# of sides	4	3	4	4

2. Find an equation defining the inverse function of the given one-to-one function

a) $f(x) = x^3 - 5$	b) $h(x) = \frac{13}{2}x - 4$
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3. Solve. State the exact answer and the four decimal place approximation

a) $4^{2x} = 64$	b) $\log_4 x = -3$	c) $\log_2(3x - 1) = 4$
d) $\log_8(x^2 + 7x) = 1$	e) $3^{2x+1} = 6$	f) $3 \cdot 4^{x+5} = 2$
g) $\ln(3x) - \ln(x - 3) = 2$	h) $-\log_6(4x + 7) + \log_6 x = 1$	i) $\log_2 x + \log_2 2x - 3 = 1$ Hint: Pay attention to parentheses!
j) $\ln(2x) = 2$	k) $\ln(3x + 1) = 2.3$	l) $e^{3x+2} = 5$

4. Use the properties of logarithms to write each expression as a sum or difference of multiples of logarithms

a) $\log_3 \frac{x^3}{x+2}$	b) $\log_7 \frac{yz^3}{x}$
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5. Use log rules and/or your calculator to find the four decimal approximations.

a) $\log 3^{2.03}$	b) $\log_7 \frac{8}{9}$
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6. The compound interest formula is $A = P \left(1 + \frac{r}{n}\right)^{nt}$ where n represents the number of times interest is compounded each year, P is the initial deposit, r is the annual interest rate, t is the number of years, and A is the amount accrued.

- a) Clearly define your variables.
- b) What rate of interest is required so that \$1000 will yield \$1900 after 6 years if the interest is compounded quarterly?
- c) If I invested \$300, at an annual rate of 6% compounded monthly, how long will it take for my account balance to triple?
- d) If I opened a savings account with an interest rate 3% compounded monthly and deposited some money, how long will it take for my balance to double?

7. Write the following expressions in equivalent exponential or logarithmic form. (Fill in the blanks).

Exponential form	Logarithmic Form
$5^3 = 125$	_____
_____	$\ln 3 = x$