

HA2 Unit 8 : Logarithms Assignment Sheet

Date	Day	Objectives	Assignments
Mon., 11-28	1	<ul style="list-style-type: none"> Solve exponential equations Graph exponential equations with and without a calculator Change from exponential form to logarithmic form and vice versa 	Day 1 Worksheet
Tues., 11-29	2	<ul style="list-style-type: none"> Laws of Logs Expand using the law of logs Write in condensed form using the laws of logs Solve logarithmic equations 	Day 2 Worksheet
Wed., 11-30	3	<ul style="list-style-type: none"> Finding common logs and antilogs using calculator Solve exponential equations using logs 	p. 456 # 2 – 10 evens, 34 –46 evens (round to the nearest hundredth)
Thu., 12-1	4	<ul style="list-style-type: none"> Use logs to solve word problems 	Day 4 Worksheet
Fri., 12-2	5	<ul style="list-style-type: none"> Quiz More word problems 	
Mon., 12-5	6	<ul style="list-style-type: none"> Natural Logs Applications of Exponential functions 	Day 6 Worksheet
Tues., 12-6		All 10 th graders take the PLAN	
Wed., 12-7	7 Early Release	<ul style="list-style-type: none"> More applications 	Day 7 Worksheet
Thurs., 12-8	8	<ul style="list-style-type: none"> Review 	Finish Review & STUDY!!!
Fri., 12-9	9	<ul style="list-style-type: none"> Test 	

Unit 8 Logs Notes

Exponential Form	Logarithmic Form
$5^x = 17$	$\log_5 17 = x$
$8^{\frac{2}{3}} = 4$	$\log_8 4 = \frac{2}{3}$
$a^t = m$	$\log_a m = t$

Exponential Equations:

A.) When possible, try to write each side of the equation with the same base.

Example:

$$8^{x+2} = 16^{3x-1}$$

$$(2^3)^{x+2} = (2^4)^{3x-1}$$

$$2^{3x+6} = 2^{12x-4}$$

$$3x + 6 = 12x - 4$$

$$10 = 9x$$

$$\frac{10}{9} = x$$

Formulas:

$$A = P \left(1 + \frac{r}{n} \right)^{nt} \quad (\text{compound interest})$$

$$N = N_0 \left(\frac{1}{2} \right)^{\left(\frac{t}{h} \right)} \quad (\text{growth \& decay})$$

$$A = Pe^{rt} \quad (\text{compounded continuously})$$

Common Logs (base 10)

$$\log 10 = 1$$

Natural Logs (base e)

$$\ln e = 1$$

Laws of Logs

$$1. \log_b M \cdot N = \log_b M + \log_b N$$

$$2. \log_b \frac{M}{N} = \log_b M - \log_b N$$

$$3. \log_b M^T = T \cdot \log_b M$$

B.) When you cannot express both sides with the same base, take the common log of both sides and solve. If the equation has “e”, take the natural log.

Example:

$$2^x = 7$$

$$\log 2^x = \log 7$$

$$x \log 2 = \log 7$$

$$\frac{x \log 2}{\log 2} = \frac{\log 7}{\log 2}$$

$$x = \frac{\log 7}{\log 2}$$

$$x \approx 2.81 \text{ to the nearest hundredth}$$