Algebra II
Unit 8 and 9 Syllabus*

Day	Date	Description	Homework
1		Super Quiz: Unit 7 Evaluating Logarithms - *definition, evaluating*	• Intro to Logarithms WKST
2		Properties of Logarithms - *inverse properties, expand and condense*	• Properties of Logarithms WKST 1 • Set A
3		Properties of Logarithms - *expand and condense, change of base, evaluating on calculator* Quiz Review	• Properties of Logarithms WKST 2 • Set B
4		QUIZ – *evaluating logarithms, logarithm properties (need a calculator)* Exponential Graphs – *growth/decay*	• Exponential Graphs WKST
5		Logarithmic Graphs Solving Exponential Equations - *solving exponential equations by making bases equal*	• Logarithmic Graphs WKST • Solving WKST 1
6		Solving Exponential and Logarithmic Equations – *solving exponential equations by using logarithms, solving logarithmic equations*	• Solving WKST 2
7		Solving Exponential and Logarithmic Equations – *mixed solving, finding inverses of logarithms and exponentials* Quiz Review	• Solving WKST 3
8		QUIZ – *sketching logarithmic and exponential functions, solving exponential and logarithmic equations (need a calculator), finding inverses* Word problems – *compound interest*	• Word Problems WKST
9		Review	• Unit 8 Review WKST
10		Unit 8 Test	• SPRIAL ASSIGNMENT 4
11		LOF Transformations – *shifts with absolute value, quadratic, square root*	• LOF WKST 1
12		Transformations – *shifts, dilations and reflections with absolute value, quadratic, square root, cube root, reciprocal*	• LOF WKST 2 • Set C
13		Review	• Unit 9 Review WKST
14		Unit 9 Super Quiz	• Final Review WKST
15		Final Exam Review	• Final Review WKST

*This syllabus is subject to change.

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<div style="text-align:center">Set A</div>

Evaluate.

1. $3^{\log_3 4}$ 2. $\log_7 7^5$ 3. $e^{\ln 2}$ 4. $\ln e^9$ 5. $\log 10^3$

Expand. Simplify if possible.

6. $\log_3 \dfrac{(x+5)^2}{81}$ 7. $\ln \sqrt{e^3 x^4 y}$

Condense. Simplify if possible.

8. $\log x - 3\log(x-4) + \log 5$ 9. $\log_3(x-1) + \log_3(x+2)$

<div style="text-align:center">SET B</div>

1. Rewrite in exponential form: $\log_3 9 = 2$

2. Rewrite in logarithmic form: $5^3 = 125$

3. Evaluate.

a) $\log_2 8$ b) $\log\left(\frac{1}{1000}\right)$ c) $\log_9 27$

d) $\log_{25} 5$ e) $\ln e$ f) $\log_{17} 1$

g) $3^{\log_3 6}$ h) $\log_x \sqrt{x}$ i) $\log_5 625$

4. Without the use of a calculator, determine which two consecutive integers each expression below falls between. Explain your reasoning.

a) $\log_3 8$ b) $\log_5\left(\frac{1}{2}\right)$ c) $\log_{25}(4)$

<div style="text-align:center">SET C</div>

Describe the transformations necessary to transform the graph of f(x) into that of g(x).

1. $f(x) = \sqrt[3]{x}$ 2. $f(x) = \sqrt[3]{x}$
   $g(x) = \sqrt[3]{x+3} - 2$ $g(x) = -\sqrt[3]{2x} + 3$

Sketch the graph of each function.

3. $g(x) = \sqrt[3]{-(x-4)} - 3$ 4. $g(x) = 2\sqrt[3]{x+2} - 3$

SET A

1.   4
2.   5
3.   2
4.   9
5.   3
6. $2\log_3(x+5)-4$

7. $\dfrac{3}{2}+2\ln x+\dfrac{1}{2}\ln y$

8. $\log\dfrac{5x}{(x-4)^3}$

9. $\log_3(x^2+x-2)$

SET B

1. $3^2 = 9$
2. $\log_5 125 = 3$
3.

   a) 3   b) -3 c) 3
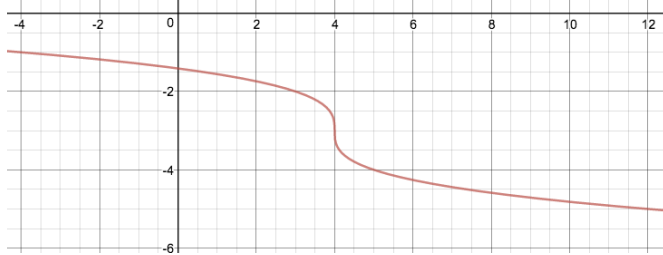
   d) $\frac{1}{2}$ e) 1   f) 0

   g) 6   h) $\frac{1}{2}$ i) 4

4.

a) Since $\log_3 3 < \log_3 8 < \log_3 9$, then $1 < \log_3 8 < 2$

b) Since
$$\log_5\left(\frac{1}{5}\right) < \log_5\left(\frac{1}{2}\right) < \log_5(1), \text{ then}$$
$$-1 < \log_5\left(\frac{1}{2}\right) < 0$$

c) Since
$$\log_{25}(1) < \log_{25}(4) < \log_{25}(25),$$
then $0 < \log_{25}(4) < 1$

SET C

1.   left 3; down 2

2.   up 3; reflect over the x-axis; horizontal shrink by a factor of 2

3.

4.