

Chaparral High School
Algebra II Review for Exam on Chapter 7
Exponential and Logarithmic Functions

This is a 50 minute exam to be completed without the aid of calculators. Please *show all appropriate work* and place answers in *lowest terms*. Please work independently. This exam will be scaled to 100 points. Good Luck!

- 1) **Section 7.2** (6 points) Sketch the graph of the function given below. Use a table of values with at least 3 points. Show the asymptote with a dashed line on the coordinate system. Give the domain and range of the function.

$$f(x) = 2^{x-8} + 1$$

- 2) **Section 7.3** (4 points) Evaluate the following logarithms.

$$\log_{12} 1$$

$$\log_2 \frac{1}{8}$$

$$\log_4 64$$

$$\log_9 \frac{1}{3}$$

- 3) **Section 7.3** (6 points) Sketch the graph of the function given below. Clearly identify the "key point". Give the domain and range of the function.

$$f(x) = \log_3(x + 2) - 1$$

- 4) **Section 7.4** (4 points) Expand the expression below.

$$\log_3 \frac{6x^2y^{-1}}{5}$$

- 5) **Section 7.4** (4 points) Condense the expression given below into a single logarithm.

$$\frac{1}{3} \log_4 27 - \left(2 \log_4 6 - \frac{1}{2} \log_4 81 \right)$$

- 6) **Section 7.4** (4 points) If $\log_3 2 \approx .631$ and $\log_3 7 \approx 1.771$, find $\log_3 28$

- 7) **Section 7.5/7.6** (5 points) Solve the exponential equation given below. Leave answer in exact form.

$$4^{2x-1} = 8^{3x+2}$$

- 8) **Section 7.5/7.6** (5 points) Solve the exponential equation given below. Leave answer in exact form.

$$-12e^{-x} + 8 = 7$$

- 9) **Section 7.5/7.6** (6 points) Solve the logarithmic equation given below. Leave answer in exact form.

$$-5 + 2 \log_3(3x) = -7$$

- 10) **Section 7.5/7.6** (6 points) Solve the logarithmic equation given below. Leave answer in exact form.

$$\ln(x - 2) + \ln(2x - 3) = 2 \ln x$$