You Can WS (Part 1) ALG2CP

**Unit 7 - Exponential and Logarithmic Functions**

Calculator allowed. *HOWEVER, for problems marked NC (No-Calculator), you MUST show work that demonstrates an understanding of how to do the problems without a calculator*.

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**Use property of equality of exponents to solve exponential equations. (NC)**

Solve each equation.

1) = =

**Use the definition of a log to translate between exponential and log form (no work needed). (NC)**

Write each equation in exponential form. Write each equation in logarithmic form.

216 = 3 4) = –4 = 1 6) = 81

Evaluate each expression.

81 0.0001 10) 27

1 12) 4 13) 14)

**Use properties of logarithms to evaluate and approximate logarithmic expressions. (NC)**

Use 5 ≈ 0.6990 and 7 ≈ 0.8451 to approximate the value of each expression.

35 25

**Use properties of logarithms to solve logarithmic and exponential equations. (NC)**

*n* = 8 19) (5*y* + 2) – 1 = (1 – 2*y*)

20) 48 – *w* = 4 (*a* + 3) + (*a* + 2) = 6

22) ( – 4) – (*x* + 2) = 1 23) (*n* – 3) + (*n* + 4) = 1

24) 3*x* – 5 = 1024 ( – 4) = 3*x*

You Can WS (Part 2) ALG2CP

**Unit 7 - Exponential and Logarithmic Functions**

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**Work with common logs and natural logs.**

Write an equivalent exponential or logarithmic equation. (NC)

1) ln 50 = *x* 2) ln 36 = 2*x* 3) log 100 = 2

= 8 = 10*x*  = 100000

**Solve logarithmic and exponential applications. (Calculator OK, but still show work)**

Solve each equation. Round to four decimal places. (Save calculator for the last step)

= 5 8) 2= 24 9) 2– 3 = 1

10) ln (*x* + 2) = 3 11) 2ln (–2*x*) = 7 12) ln 3*x* + ln 2*x* = 9

**Graph exponential and logarithmic functions, identifying key features such as domain and range, intervals of increasing and decreasing, end behavior, asymptotes, and intercepts. (NC)**

Graph the following and state the domain and range, intervals of increasing and decreasing, intercepts, asymptotes, and end behavior.

13) 15) 16)

**Evaluate logs with a calculator. Express a log with a base other than *10* or *e* in terms of common logs and use a calculator to approximate its value (change of base formula).**

Use a calculator to evaluate each expression to the nearest ten-thousandth.

17) log 101 18) ln 0.05

Express each logarithm in terms of common logarithms. Then approximate its value to the nearest ten-thousandth. (Calculator ok, show change of base formula)

19) 6