Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_ Class Period: \_\_\_\_\_\_\_

**Algebra 2 6.3: Logarithms (Day 2 Worksheet)**

*Note the “****NC****” and “****C****” indications. When using a calculator, round final answers to three decimals.*

1. Evaluate each logarithm. ***NC***

|  |  |  |  |
| --- | --- | --- | --- |
| **a.**  | **b.**  | **c.**  | **d.**  |

1. Solve each equation for *x* by rewriting in logarithmic form. Show all work. ***C***

|  |  |  |
| --- | --- | --- |
| **a.**  | **b.**  | **c.**  |
| **d.**  | **e.**  | **f.**  |

1. Solve each equation for *x* by rewriting in logarithmic form. Show all work. ***NC***

|  |  |  |
| --- | --- | --- |
| **a.**  | **b.**  | **c.**  |

1. Solve each equation for *x* by rewriting in exponential form. Show all work. ***NC***

|  |  |  |
| --- | --- | --- |
| **a.**  | **b.**  | **c.**  |
| **d.**  | **e.**  | **f.**  |

**5.** The Richter magnitude of an earthquake is , where  is the energy (in kilowatt-hours) released by the earthquake. ***C***

**a.** What is the magnitude of an earthquake that releases 11,800,000,000 kilowatt-hours of energy? Round to the nearest tenth.

**b.** How many kilowatt-hours of energy would an earthquake have to release in order to be an 8.2 on the Richter scale? Round to the nearest whole number.

**c**. If walls may start to crack at a magnitude of 4 or higher, what is the least number of kilowatt-hours an earthquake would have to release to start cracks in walls? Round to the nearest whole number.

**6.** The function  calculates the temperature (in °F) of a cup of coffee that was handed out a drive-thru window  minutes ago.

**a.** What was the coffee’s temperature the instant it was handed out the window?

**b.** After how many minutes is the coffee in the cup 98° F? Round to the nearest whole minute.