Name: _____ M$6 Exam 1 Review Sheet

1. What is the domain of $f(x) = 2^x$?

(1) all real numbers (3) all integers
(2) $x \le 0$ (4) $x \ge 0$

2. If $\log_5 x = 2$, what is the value of $\sqrt{x}$?

(1) 25 (3) $2^{\frac{2}{5}}$
(2) 5 (4) $\sqrt{5}$

3. The relationship between the relative size of an earthquake, *S*, and the measure of the earthquake on the Richter scale, *R*, is given by the equation $\log S = R$. If an earthquake measured 3.2 on the Richter scale, what was its relative size to the *nearest hundredth*?

4. In the equation $y = 33\left(1.09^x\right)$, *y* represents the number of cans of soda drank in a certain town in thousands and *x* represents the number of years since 1992. Find the year when the people of the town drank 50 thousand cans of soda for the first time.

5. The scientists in a laboratory company raise amebas to sell to schools for use in biology classes. They know that one ameba divides into two amebas every hour and that the formula $t = \log_2 N$ can be used to determine how long in hours, *t*, it takes to produce a certain number of amebas, *N*. Determine, to the *nearest tenth of an hour*, how long it takes to produce 10,000 amebas if they start with one ameba.

6. Solve for *x* to the *nearest hundredth*:

$2^x = \frac{3}{16}$

7. Solve for *x*: $2^{1-3x} - \left(\frac{1}{4}\right)^2 = 0$

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

8. Solve for x: $\log_3(7x+4) - \log_3 2 = 2\log_3 x$

8.

9. Solve for x: $2\log_2 x - \log_2(x-1) = 3$

9.

10. If $\log 30 = b$, then $(b-1)^2$ is equivalent to

(1) $(\log 29)^2$ (3) $(\log 3)^2$

(2) $2(\log 30 - 1)$ (4) $\log 899$

10.

11. The magnitude (R) of an earthquake is related to its intensity (I) by $R = \log\left(\frac{I}{T}\right)$, where T is the threshold below which the earthquake is not noticed. If the intensity is doubled, its magnitude can be represented by

(1) $2(\log I - \log T)$ (3) $\log I - \log T$

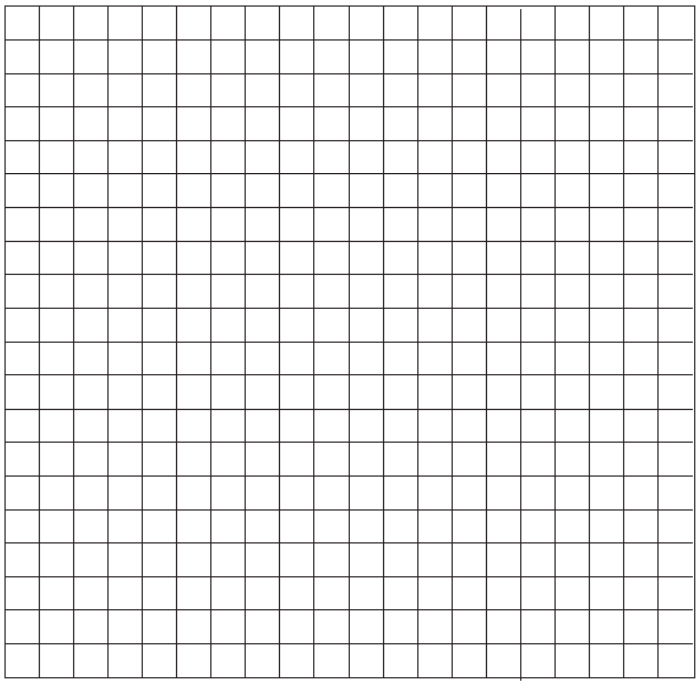
(2) $\log 2 + \log I - \log T$ (4) $2\log I - \log T$

11.

12. On the accompanying grid, solve the following system of equations graphically:

$y = -x^2 + 2x + 1$

$y = 2^x$



12.