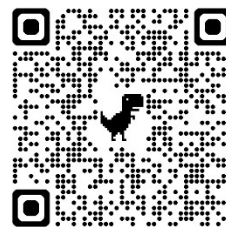


Name _____
Mr. Schlansky

Date _____
Algebra II



Solving Systems Graphically Using TI

1. To the *nearest tenth*, the value of x that satisfies $2^x = -2x + 11$ is

- 1) 2.5
- 2) 2.6
- 3) 5.8
- 4) 5.9

2. For which values of x , rounded to the *nearest hundredth*, will $|x^2 - 9| - 3 = \log_3 x$?

- 1) 2.29 and 3.63
- 2) 2.37 and 3.54
- 3) 2.84 and 3.17
- 4) 2.92 and 3.06

3. For which approximate value(s) of x will $\log(x + 5) = |x - 1| - 3$?

- 1) 5, 1
- 2) -2.41, 0.41
- 3) -2.41, 5
- 4) 5, only

4. Which value, to the *nearest tenth*, is an approximate solution for the equation $f(x) = g(x)$, if

$$f(x) = \frac{5}{x-3} \text{ and } g(x) = 2(1.3)^x?$$

- 1) 3.2
- 2) 3.9
- 3) 4.0
- 4) 5.6

5. If $p(x) = 2\ln(x) - 1$ and $m(x) = \ln(x + 6)$, then what is the solution for $p(x) = m(x)$?

- 1) 1.65
- 2) 3.14
- 3) 5.62
- 4) no solution

6. Which value, to the *nearest tenth*, is *not* a solution of $p(x) = q(x)$ if $p(x) = x^3 + 3x^2 - 3x - 1$ and $q(x) = 3x + 8$?

- 1) -3.9
- 2) -1.1
- 3) 2.1
- 4) 4.7

7. If $f(x) = g(x)$ $f(x) = 3|x| - 1$ and $g(x) = 0.03x^3 - x + 1$, an approximate solution for the equation $f(x) = g(x)$ is

- 1) 1.96
- 2) 11.29
- 3) (-0.99, 1.96)
- 4) (11.29, 32.87)

8. Given: $h(x) = \frac{2}{9}x^3 + \frac{8}{9}x^2 - \frac{16}{13}x + 2$

$$k(x) = -|0.7x| + 5$$

State the solutions to the equation $h(x) = k(x)$, rounded to the *nearest hundredth*.

9. If $f(t) = 325e^{-0.0735t} + 75$ and $g(t) = 375e^{-0.0817t} + 75$, for what value of t does $f(t) = g(t)$ rounded to the *nearest tenth*?

10. A technology company is comparing two plans for speeding up its technical support time. Plan A can be modeled by the function $A(x) = 15.7(0.98)^x$ and plan B can be modeled by the function $B(x) = 11(0.99)^x$ where x is the number of customer service representatives employed by the company and $A(x)$ and $B(x)$ represent the average wait time, in minutes, of each customer. To the *nearest integer*, solve the equation $A(x) = B(x)$.

11. Website popularity ratings are often determined using models that incorporate the number of visits per week a website receives. One model for ranking websites is $P(x) = \log(x - 4)$, where x is the number of visits per week in thousands and $P(x)$ is the website's popularity rating.

An alternative rating model is represented by $R(x) = \frac{1}{2}x - 6$, where x is the number of visits per week in thousands. For what number of weekly visits will the two models provide the same rating?

12. The value of a certain small passenger car based on its use in years is modeled by $V(t) = 28482.698(0.684)^t$, where $V(t)$ is the value in dollars and t is the time in years. Zach had to take out a loan to purchase the small passenger car. The function $Z(t) = 22151.327(0.778)^t$, where $Z(t)$ is measured in dollars, and t is the time in years, models the unpaid amount of Zach's loan over time. State when $V(t) = Z(t)$, to the *nearest hundredth*.