(handwritten annotations top) X Value only! / Y1 Y2 Intersect / Alpha window for 11 / log

Solving Systems Graphically Using TI

1. To the *nearest tenth*, the value of *x* that satisfies $2^x = -2x + 11$ is *(Y1 Y2 Intersect   x=2.6)*

1) 2.5   3) 5.8

2) 2.6 *(circled)*   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 *(circled)*   3) 2.84 and 3.17   *(Y1   Y2 Intersect)*

2) 2.37 and 3.54   4) 2.92 and 3.06

3. For which approximate value(s) of *x* will $\log(x + 5) = |x - 1| - 3$? *(Y1 Y2 Intersect)*

1) 5, 1   3) -2.41, 5 *(circled)*

2) -2.41, 0.41   4) 5, only

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

$f(x) = \dfrac{5}{x - 3}$ and $g(x) = 2(1.3)^x$? *(Intersect   Y1 Y2   x=3.9)*

1) 3.2   3) 4.0

2) 3.9 *(circled)*   4) 5.6

5. If $p(x) = 2\ln(x) - 1$ and $m(x) = \ln(x + 6)$, then what is the solution for $p(x) = m(x)$? *(Y1 Y2 Intersect)*

1) 1.65   3) 5.62 *(circled)*

2) 3.14   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   3) 2.1   *(＊Adjust window)*

2) -1.1   4) 4.7 *(circled)*   *(x=-3.9, x=-1.1, x=2.1)*

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   3) (-0.99, 1.96) *(crossed out)*   *(＊Adjust window)*

2) 11.29 *(circled)*   4) (11.29, 32.87) *(crossed out)*

(Only X coordinate)

8. Given: $h(x) = \frac{2}{9}x^3 + \frac{8}{9}x^2 - \frac{16}{13}x + 2$ *y1* $\quad$ Intersect

$k(x) = -|0.7x| + 5$ *y2*

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

$X = -5.17$
$Y = -1.13$
$X = 1.75$

9. If $f(t) = 325e^{-.0735t} + 75$ and $g(t) = 375e^{-.0817t} + 75$, for what value of t does $f(t) = g(t)$ *y1* rounded to the *nearest tenth*? $\quad$ *y2* $\quad$ Intersect

Zoom Fit

$t = 17.5$

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 $A(x) = B(x)$.

Intersect

*adjust X max and y max

$x = 35$

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?

*adjust y max

Intersect
$x = 14$
$14,000$

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*,

Intersect

*Zoom Fit

$t = 1.95$