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Algebra II

Solving Systems Graphically Using TI

For each of the following pairs of functions:

a) **Find all points of intersection, rounding to the nearest hundredth**
b) **Find all values that satisfy $f(x) = g(x)$ rounding to the nearest thousandth**

1. $f(x) = x^2 - 4$
   $g(x) = 2x + 2$
   (-1.65, -1.29) $x = -1.646$
   (3.65, 9.29) $x = 3.646$

2. $f(x) = 3^{x-1} + 2$
   $g(x) = \frac{1}{2}x + 5$
   (-6.00, 2.00) $x = -5.999$
   (2.29, 6.15) $x = 2.295$

3. $f(x) = \log_3 x$
   $g(x) = (x-5)^2$
   (3.89, 1.24) $x = 3.888$
   (6.29, 1.67) $x = 6.294$

4. $f(x) = |x - 3|$
   $g(x) = -x^2 - 3x + 4$
   (-2.41, 5.41) $x = -2.414$
   (.41, 2.59) $x = .414$

5. $f(x) = 2^x$
   $g(x) = (x-8)^2$
   (4, 16) $x = 4$

6. $f(x) = \log_7(x) + 2$
   $g(x) = -\frac{1}{8}x + 10$
   ~~(48.078, 3.990)~~
   (48.08, 3.99) $x = 48.078$

7. $f(x) = \sqrt[3]{x^2 - 8} + 9$
   $g(x) = 2|x| - 2$
   (-7.28, 12.56) $x = -7.278$
   (7.28, 12.56) $x = 7.278$

8. $f(x) = 0.4x^5 - 4x^3 + 9x$
   $g(x) = 5(2)^x - 8$
   (-2.83, -7.30) $x = -2.827$
   (-.96, -5.43) $x = -.959$
   (-.66, -4.83) $x = -.655$
   (1.31, 4.36) $x = 1.306$
   (3.28, 40.72) $x = 3.284$

9. $f(x) = 100(1.16)^x$
$g(x) = 5x^2 + 50$

(-2.14, 72.82) | $x = -2.137$
(6.54, 264.14) | $x = 6.544$

10. $f(x) = 800(0.8)^x$
$g(x) = 200(1.2)^x$

~~(3.42, 391.25)~~ | $x = 3.419$
(3.42, 373.04)

11. $f(x) = 2000 \ln x$
$g(x) = .8(x - 52)^2$

(2.65, 1948.41) | $x = 2.649$
(164.98, 10211.65) | $x = 164.980$

12. $f(x) = 2246 - 71 \ln x$
$g(x) = 2155 - 31 \ln x$

(9.73, 2084.48) | $x = 9.728$

13. $f(x) = .12x^3 - 3x^2 - 12$
$g(x) = -\log_4 x - 50$

(3.93, -50.99) | $X = 3.926$
(24.44, -52.31) | $X = 24.438$

14. $f(x) = 12\sqrt{x + 100} + 57$
$g(x) = -\frac{1}{2}|x| + 212$

(33.11, 195.45) | $x = 33.107$

15. $f(x) = -.1(x + 23.2)^2 + 1492$
$g(x) = 2.9|x + 50| + 739.6$

(-100.96, 887.38) | $X = -100.958$
(45.71, 1017.16) | $X = 45.709$

16. $f(x) = 12000(.64)^x$
$g(x) = 9000(1.14)^x$

~~(.58)~~
(.50, 9607.24) | $X = .498$