Name_____

Advanced Algebra
Unit 1B Systems of Polynomials WS

Solve each system of equations graphically.

1. $y = x^3 - 3x^2 + 3$
   $y = -2x + 3$
   (0, 3) (1, 1) (2, -1)

2. $f(x) = 3x$
   $g(x) = x^3 - x$
   (-2, -6) (0, 0) (2, 6)

3. $y = x^3 + 44x$
   $y = 48 + 12x^2$
   (4, 240) (2, 96) (6, 480)

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4. $f(x) = x^4 + 2x^3 - 35x^2$
   $g(x) = 72x + 36$
   (-6, -396) (6, 468) (-1, -36)

Use a graphing calculator to solve the system of equations.

5. $f(x) = x^6 + 8x^4$
   $g(x) = -9x^2 + 18$
   (-1, 9) (1, 9)

6. $h(x) = x^6 + 27x^4 + 51x^2$
   $k(x) = -10$
   no solution

7. $y = 3x^3 + x^5 + 2x$
   $y = 9x^2 + 3x^4 + 6$
   (3, 330)

8. $f(x) = x^3 - 4x^2$
   $g(x) = -\frac{1}{2}x - 1$
   (-.42, -.79) (.62, -1.31) (3.80, -2.90)

9. $A = (x^2+3x)(x^2+12x-28)$
$A = x^4+15x^3+8x^2-84x$

$1008 = (x^2+3x)(x^2+12x-28)$
$x = 4$

lenght: $(4)^2+3(4) = 28$ ft

width: $(4)^2+12(4)-28 = 36$ ft

10. $V(x) = (8-x)(x+7)(x-2)$
$V(x) = -x^3+3x^2+54x-112$

b. Maximum at (5.36, 109.64)

lenght: $8-5.36 = 2.64$
width: $5.36+7 = 12.36$
height: $5.36-2 = 3.36$

c. NO dimension can be 0 or negative

$8-x>0$ $\quad x+7>0$ $\quad x-2>0$
$8>x$ $\quad x>-7$ $\quad x>2$

SO, $2<x<8$

Domain: $(2, 8)$

11. $S = -241t^7+1062t^6-1871t^5+1647t^4-737t^3+144t^2-2.432t$

At .8 seconds, she is going 2.25 m/s