

Name _____

Unit 3A Algebra 2
Systems of Polynomials WS

Solve each system of equations algebraically. #1-4 must be done on a separate piece of paper!!

1. $y = x^3 - 3x^2 + 3$
 $y = -2x + 3$

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

3. $y = 8x^3 - 50x$
 $y = 4x^2 - 25$

4. $f(x) = x^2 - 12$
 $g(x) = 4x$

Use a graphing calculator to solve the system of equations.

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

6. $h(x) = x^6 + 27x^4 + 51x^2$
 $k(x) = -10$

7. $y = 3x^3 + x^5 + 2x$
 $y = 9x^2 + 3x^4 + 6$

8. $f(x) = x^3 - 4x^2$
 $g(x) = -\frac{1}{2}x - 1$

Flip over ☺

For the following word problems, use a graphing calculator to answer the questions where necessary.

9. A rectangle has a length of $(x^2 + 3x)$ and a width of $(x^2 + 12x - 28)$.

a. Write a polynomial function $A(x)$ that would represent the area of the rectangle.

b. If the area of the rectangle is 1008 ft^3 , what is the length and width of the rectangle?

10. A rectangular prism with length $(8 - x)$, width $(x + 7)$ and height $(x - 2)$.

a. Write a polynomial function $V(x)$ that would represent the volume of the prism.

b. What is the maximum volume of the prism? And what are the dimensions of the prism?

c. What is the domain of the function of the volume?

11. Twice a number multiplied by the same number increased by 5 is 408.

a. Write an equation that represents the statement above.

- b. What are the two numbers used for the equation?

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