

# Algebra 2

Name \_\_\_\_\_

## PARTNER TEST Chapter 4

Date \_\_\_\_\_ Hour \_\_\_\_\_

1. Identify the vertex, the axis of symmetry, the maximum or minimum value, y intercept, domain and the range of each quadratic function. Also, fill out the table and sketch the graph.

a.  $f(x) = -3(x+2)^2 + 1$

Vertex: \_\_\_\_\_

AOS: \_\_\_\_\_

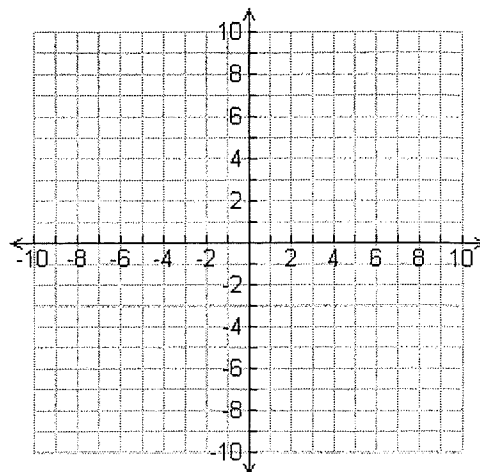
Max / Min: \_\_\_\_\_

Y intercept: \_\_\_\_\_

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

x	y			



b.  $f(x) = 3x^2 - 12x + 3$

Vertex: \_\_\_\_\_

AOS: \_\_\_\_\_

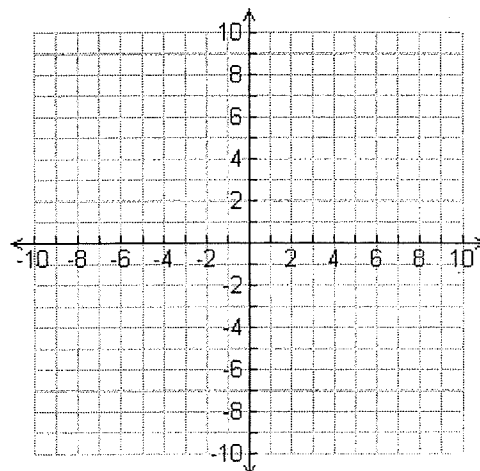
Max / Min: \_\_\_\_\_

Y intercept: \_\_\_\_\_

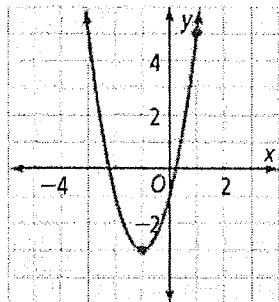
Domain: \_\_\_\_\_

Range: \_\_\_\_\_

x	y			



2. Write the quadratic equation in vertex form of the graph below. Show your work.



2. \_\_\_\_\_

3. Rewrite  $f(x) = -2(x+1)^2 - 3$  in standard form. Show your work.

3. \_\_\_\_\_

4. Convert  $f(x) = 4x^2 - 8x + 3$  to vertex form. Show your work.

4. \_\_\_\_\_

Factor each polynomial **completely**. There may be more than one method. HINT: GCF something first.

**SHOW ALL WORK**

5.  $2x^2 + 6x + 4$

6.  $2x^2 - x - 3$

7.  $4x^2 - 49$

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

Solve each polynomial by factoring. Show your work.

8.  $(x+5)(3x-2) = 0$

9.  $25x^2 - 4 = 0$

10.  $2x^2 - x = 3$

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

Solve. Give exact answers and simplify all radicals.

11.  $3x^2 - 24 = 0$

12.  $2x^2 - 8x - 4 = 0$

13.  $5x^2 - 7x - 3 = 0$

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

Evaluate the discriminant for each equation. Determine the number of real solutions.

14.  $-2x^2 - 6x - 4 = 0$

15.  $4x^2 - 12x + 9 = 0$

$d =$  \_\_\_\_\_

$d =$  \_\_\_\_\_

# of sol. = \_\_\_\_\_

# of sol. = \_\_\_\_\_

Simplify the number by using the imaginary number  $i$ . Simplify all radicals.

16.  $\sqrt{-72}$

16. \_\_\_\_\_

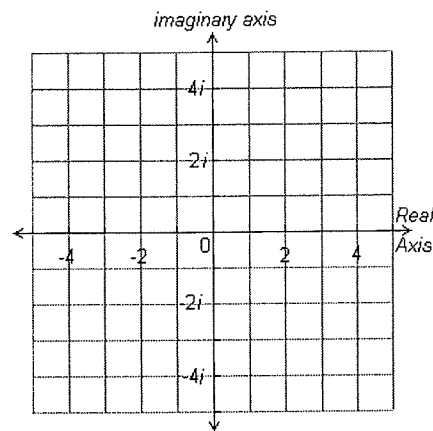
Plot and label each complex number **and** find its absolute value.

17.  $A = 4i$

18.  $B = -2 + 5i$

$|4i| =$  \_\_\_\_\_

$|-2 + 5i| =$  \_\_\_\_\_



Simplify each expression. Write in  $a + bi$  form. Be careful – is it addition, subtraction, or multiplication?

19.  $(3 + 2i) - (5 - 3i)$

20.  $(4 - 2i)^2$

19. \_\_\_\_\_

20. \_\_\_\_\_

21.  $4(2 - 6i) + i(4 - 5i)$

22.  $(6 + \sqrt{-9})(-2 + \sqrt{-49})$

21. \_\_\_\_\_

22. \_\_\_\_\_

Write each quotient as a complex number in  $a + bi$  form.

23.  $\frac{2-3i}{5-2i}$

23. \_\_\_\_\_

Find the zeros for each function. Simplify all radicals.

24.  $f(x) = 2x^2 + 100$

24. \_\_\_\_\_

Find all solutions to each quadratic equation. Simplify all radicals.

25.  $x^2 - 10x - 4 = 0$

25. \_\_\_\_\_

26. The function  $y = -.03x^2 + 1.6x$  models the path of a kicked soccer ball. The height of the soccer ball is  $y$  and the distance is  $x$ . How far and high does the soccer ball travel?

26. \_\_\_\_\_