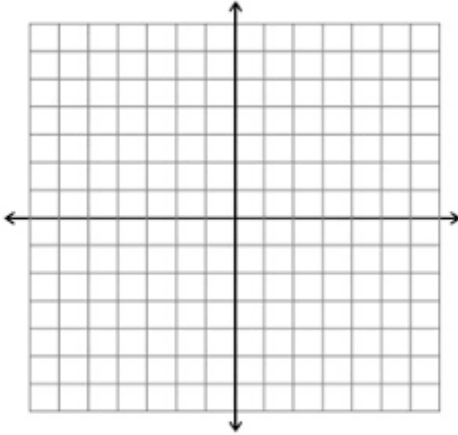


Name: _____ Date: _____ Band: _____
Algebra 2

Unit 3: Quadratic Equations and Complex Numbers Study Guide

3.1 Solving Quadratic Equations

1. Solve $x^2 - 2x - 8 = 0$ by graphing.



Solve the equation using square roots or by factoring.

2. $3x^2 - 4 = 8$

3. $x^2 + 6x - 16 = 0$

4. $2x^2 - 17x = -30$

3.2 Complex Numbers

Perform each operation. Write the answer in standard form.

5. $(3 - 6i) - (7 + 2i)$

6. $5i(4 + 5i)$

7. Find the values of x and y that satisfy the equation $36 - yi = 4x + 3i$.

Perform the operation. Write the answer in standard form.

8. $(-2 + 3i) + (7 - 6i)$

9. $(9 + 3i) - (-2 - 7i)$

10. $(5 + 6i)(-4 + 7i)$

11. Solve $7x^2 + 21 = 0$.

12. Find the zeros of $f(x) = 2x^2 + 32$.

3.3 Completing the Square

13. Solve $x^2 + 12x + 8 = 0$ by completing the square.

Solve the equation by completing the square.

14. $x^2 + 16x + 17 = 0$

15. $4x^2 + 16x + 25 = 0$

16. $9x(x - 6) = 81$

17. Write $y = x^2 - 2x + 20$ in vertex form. Then identify the vertex.

3.4 Using the Quadratic Formula

18. Solve $-x^2 + 4x = 5$ using the Quadratic Formula.

Solve the equation using the Quadratic Formula.

19. $-x^2 + 5x = 2$

20. $2x^2 + 5x = 3$

21. $3x^2 - 12x + 13 = 0$

Find the discriminant of the quadratic equation and describe the number and type of solutions of the equation.

22. $-x^2 - 6x - 9 = 0$

23. $x^2 - 2x - 9 = 0$

24. $x^2 + 6x + 5 = 0$