



- *24 questions
- *Calculators allowed
- *Show all work/steps- use separate paper
- *Recommend time frame 45min -60min

Concept of Quadratic Equations and Complex Numbers

1. True or False: There are quadratic equations where the highest variable power is more than 2?
2. Name the types of solutions a quadratic equations could have?
3. What is the shape of the graph of a quadratic equation called?
4. A complex number is made up of what two parts?
5. Write the following quadratic equation in standard form $3x - 5 = -2x^2$
6. Find the **discriminant** of $6x^2 - 3x - 1 = 0$. What does the value tell you about the solutions to the equation?
7. Solve the equation by completing the square $x^2 + 8x = -10$
8. Graph the quadratic equation $f(x) = 2x^2 - 3$
9. Graph the quadratic inequality $f(x) < (x - 4)^2 + 5$

Solving Quadratic Equations

Directions: solve the following quadratic equations by any method- must show all your work

10. $x^2 = 25$

11. $4x^2 - 1 = 35$

12. $3(x^2 - 4) + 4x^2 = 20 + 5x^2$

13. $4x^2 + 12x = 0$

14. $(x - 4)(x + 9) = 0$

15. $25(x + 3)^2 = 100$

16. $5x^2 = 20x + 60$

17. $4x^2 + 12x - 4 = 0$

18. $4w^2 + 13w = -3$

19. $3 - 7y^2 = 10$

20. The length of a rectangle is 4 more than the width. Given that the area of this rectangle is 60"sq. what are the measurements of the length and width?(approximate to the nearest tenth)

Complex Numbers

21. *Simplify* $(2 - 7i) + (6 + 12i)$

22. *Simplify* $(4 + i)(3 - 2i)$

23. *Use the conjugate to simplify* $\frac{2}{5-6i}$

24. *Graph* $9 - 2i$