

Honors Algebra 2 Summer Packet

Name _____

Algebra 1 Teacher _____

Geometry Teacher _____

The start of Algebra 2 is just around the corner, and after finishing a great year in Geometry, there are probably some Algebra skills that need some refreshing. It is essential that this packet be complete, by you and only you to the absolute best of your ability. The effort put forth on this assignment will reflect your efforts towards the beginning of the school year – so let's aim for perfection and success!

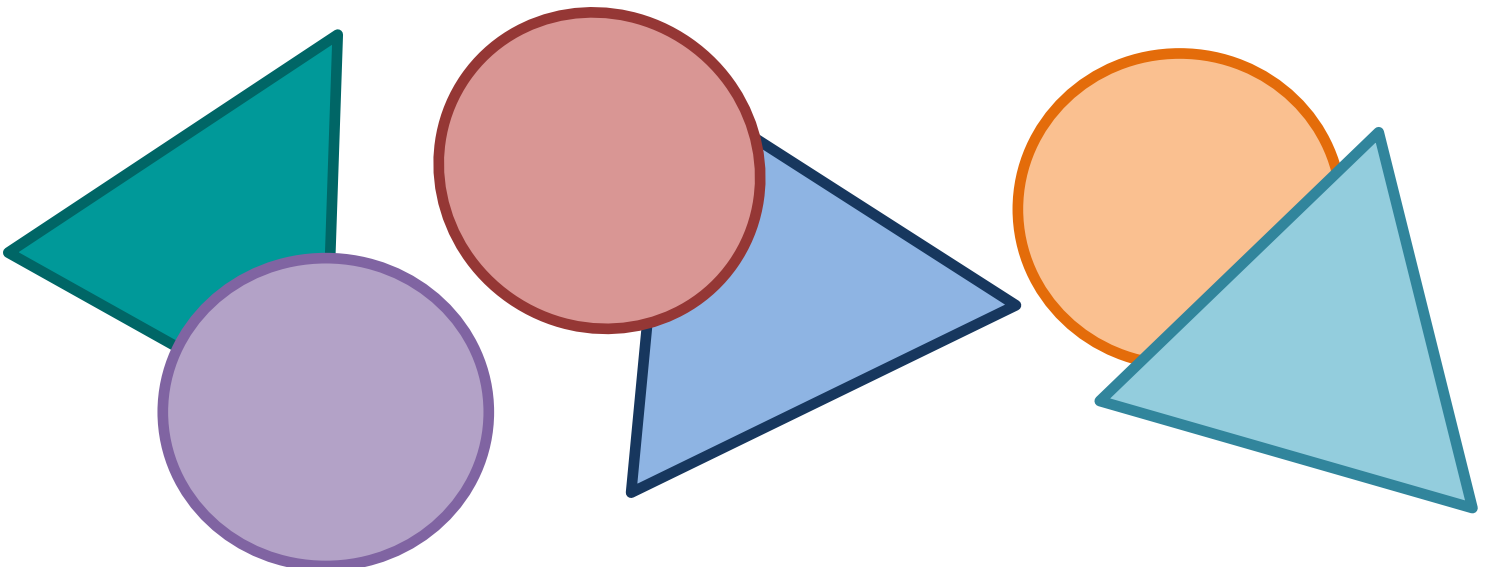
This assignment is due, showing all work and in pencil on the very first day of school. The content in this packet will also be tested on your first Chapter Test.

Things to do to be successful

- Use your Algebra 1 and Geometry Notes from previous years
- Ask an older brother, sister, or friend who may have already taken Algebra 2 to offer some assistance
- Work with a friend together to explain topics – not copy work
- Use Google or YouTube or Khan Academy – they aren't the solution for EVERY lesson but they'll certainly help if you're stuck

Things NOT to do

- Do NOT complete the packet right away, wait until a week or two before school starts to see where you are at that point
- Do NOT copy any work from another student
- Do NOT leave it blank, mark something with a question mark or circle, or give up – every problem must be done in its entirety
- Do NOT Email me the weekend before the packet is due asking for an extension



Solve the following equations **without** using a calculator. Your work and answer must use fractions (not decimals) where appropriate/necessary. You must show all work to receive credit. Please circle your final answers.

1. $\frac{x}{2} - 3 = -4$

2. $4x - (2x + 3) = 7$

3. $x - (3x - 9) = -5$

4. $3(x - 1) = 3x - 3$

5. $2(2x - 3) = 6x - 12$

6. $3a + 2(a - 1) = 7a - 4(a + 2)$

7. $9(k - 4) + 2k = 2(k - 1) + 7k$

8. $3c - 7(-c + 4) = -2(c - 5) + 6c$

9. $\frac{1}{3}(18x + 15) = \frac{1}{4}(4x + 12)$

10. $-8(x + 3) = \frac{1}{2}(-6x - 18)$

Graphing Quadratics in Standard Form: $y = ax^2 + bx + c$

Axis of Symmetry Formula:

How do you use the Axis of Symmetry to find the Vertex?

How do you determine if the parabola opens up or down?

How do you find the y-intercept?

How do you find the x-intercept/roots/solutions?

Find each of the pieces of missing information. Then graph the Quadratic Equation accordingly. If you're stuck, look up the Axis of Symmetry Formula.

11. $y = x^2 + 3x + 2$

a = b = c =

Axis of Symmetry: _____

Vertex: _____

Parabola Open Up or Down? _____

Max or Min and Value _____

y-Intercept _____

Real Roots/Zeros _____

Domain: _____ Range: _____

12. $y = x^2 - 4x + 6$

a = b = c =

Axis of Symmetry: _____

Vertex: _____

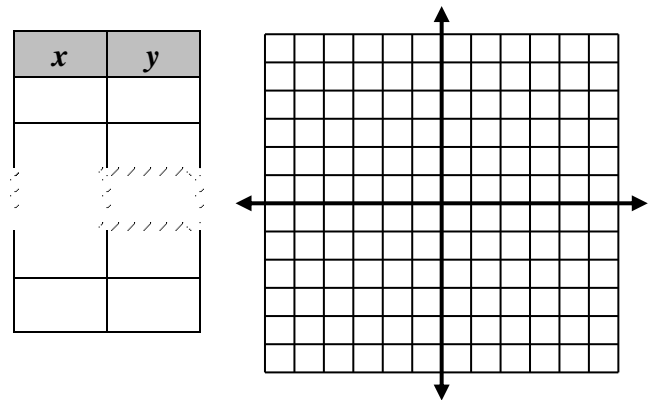
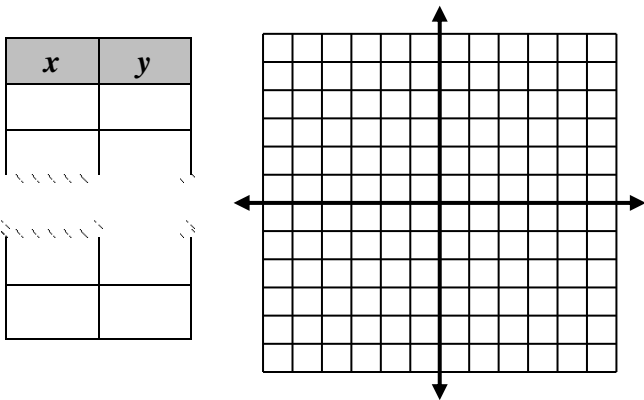
Parabola Open Up or Down? _____

Max or Min and Value _____

y-Intercept _____

Real Roots/Zeros _____

Domain: _____ Range: _____



Factor Completely. Please note, the directions DO NOT say solve. Credit will not be granted for any student who attempted to solve anything. Please CIRCLE your final answer. You will need to factor out the GCF first.

13. $-2x^3 + 16x$

14. $-15x^2y^3 + 9xy^4$

15. $36f^2 - 16$

16. $25x^4 - 64y^4$

17. $n^2 - 7n + 6$

18. $2m^2 + m - 3$

Factor Completely. Please note, the directions DO NOT say solve. Credit will not be granted for any student who attempted to solve anything. Please CIRCLE your final answer. You will need to factor out the GCF first.

19. $18y^2 - 21y - 30$

20. $12x^2 - 5x - 28$

21. $x^3 + 4x^2 + x + 4$
Hint: Factor by Grouping

Solve by COMPLETING THE SQUARE. You may not use any other method. If you forget how, use Google or YouTube or Khan Academy! Please Circle your final answer. Answers should be fractions when necessary, NOT decimals.

22. $x^2 - 8x + 7 = 0$

23. $2x^2 + 12x = -10$

24. $-3x^2 - 3x + 9 = 0$

Solve by using the Quadratic Formula. You may not use any other method. Please CIRCLE your final answer. Answers should be reduced radicals, NOT decimals.

25. $x^2 + 7 = -8x$

26. $3x^2 - 8x = 3$

27. $-8x^2 = -14x - 3$