

Name: _____ Date: _____

Summer 2019 Algebra II Packet

The goal of summer math is to ensure that students are prepared for their high school math classes. The skills learned in elementary and middle school are an integral part of success at the high school level, and this packet covers many of the important concepts that students entering high school should have mastered.

All students entering Algebra II must complete this math packet over the summer. It is due **September 6, 2019** (or the first day you are in school). Packets will **not** be accepted late.

You will receive two grades for this packet – one quiz grade of 100% for completing **all** of the problems, and another quiz grade based on the accuracy of your work and answers. **Be sure to show all work** to complete the problems.

In your Algebra II class, there will be times that a calculator is not used. Therefore, there is **NO CALCULATOR USE ALLOWED ON THE SUMMER PACKET**. The suggested calculator for Algebra II is a Texas Instruments TI-30XS. Additionally, all students will be taking a pretest the first days of school on the information covered in this math packet, and students will not be allowed to use a calculator on the pretest either.

For more practice on these skills, use the following internet sources:

www.purplemath.com

www.khanacademy.com

If you lose your packet, there is a copy on the school department.

Good luck and have a great summer!

SYSTEMS: GRAPHING, SUBSTITUTION, AND ELIMINATION.

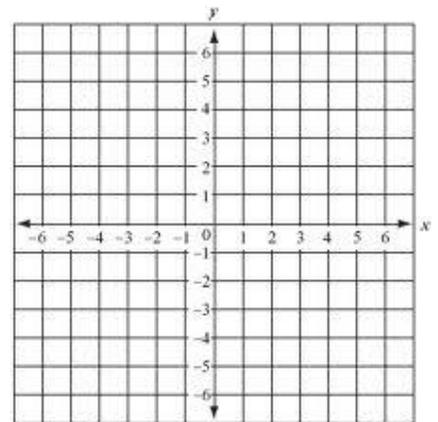
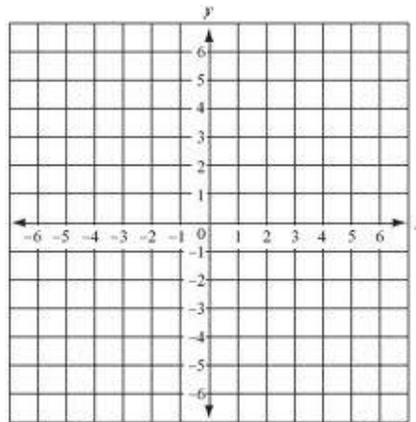
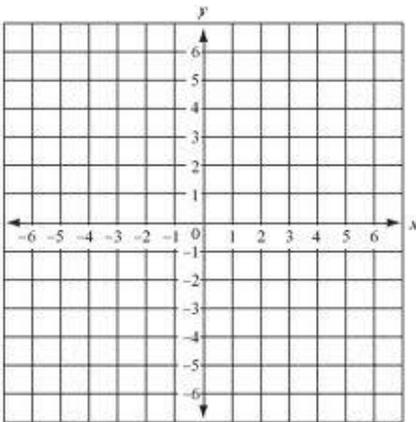
State the solution for each type of systems of equations. Possible solutions: 1) a point, (x, y), 2) infinite number of solutions, 3) no solution.

Graph each system and determine the number of solutions that it has. If it has one solution, name it.

1) $y = 3x - 3$
 $y = 3x + 2$

2) $x - y = -3$
 $2x - y = -4$

3) $2x + 2y = 6$
 $y = -x + 3$



Use substitution to solve the system of equations.

4) $y = 4x - 6$
 $5x + 3y = -1$

5) $5x - y = 5$
 $-x + 3y = 13$

SYSTEMS, CONT.

Use elimination to solve the system of equations.

$$\begin{aligned} 6) \quad & -4x + 3y = -3 \\ & 4x - 5y = 5 \end{aligned}$$

$$\begin{aligned} 7) \quad & 8x + 3y = -7 \\ & 7x + 2y = -3 \end{aligned}$$

MULTIPLYING POLYNOMIALS

1) Simplify the expression
 $(-4xy)(3x^3y^7)$

2) Solve the equation
 $x^2(2x + 3) = x(2x^2 + 3x + 1)$

3) Find the product
 $(3a - 2)(9a + 5)$

4) Simplify the expression
 $(4x^2)^3(x^2)^4$

5) Simplify the expression
 $2p(-4p^2 + 5p) - 5(3p^2 + 20)$

6) Find the product
 $(8c + 3d)^2$

FACTORING: Factoring By Grouping is only allowed in the "Grouping" section.

$$\begin{aligned} 6ax - 2b - 3a + 4bx &= 6ax - 3a + 4bx - 2b \\ &= 3a(2x - 1) + 2b(2x - 1) \\ &= (2x - 1)(3a + 2b) \end{aligned}$$

This is Factor By Grouping:

Greatest Common Factor (GCF)	
1. $12a - 27$	2. $16k - 24$
3. $48w^2 - 36w$	4. $75x^2y - 120xy$
5. $4a^3b - 8a^2b^2 + 2ab^3$	6. $30m^4n^3 - 12m^3n^2 + 6m^2n$

Difference of Squares ($a^2 - b^2$)		*Check for a GCF first.
7. $x^2 - 81$	8. $a^2 - 25b^2$	
9. $45m^3n - 5mn$	10. $98x - 8x^3$	

Basic Trinomials ($x^2 + bx + c$)		*Check for a GCF first.
11. $c^2 - c - 6$	12. $x^2 + 19x + 78$	
13. $m^2 - 6m - 27$	14. $x^3 + 16x^2 + 64x$	

FACTORING, cont.

15. $3x^3 - 9x^2 - 30x$	16. $4a^2 + 4a - 80$
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Slip & Slide Trinomials ($ax^2 + bx + c$)		*Check for a GCF first.
17. $2x^2 - x - 28$	18. $8m^2 + 6m - 5$	
19. $6w^2 - 28w + 32$	20. $16k^2 - 24k + 8$	

Grouping		*Check for a GCF first.
21. $3x^3 - 21x^2 + 2x - 14$	22. $a^3 - 9a^2b + ab - 9b^2$	
23. $m^3 - m^2n + m - n$	24. $4x^3 - x^2y + 8xy - 2y^2$	

Solve each equation. A check is a good way to know if you have the correct solution.

1) $8c + 7 = 5c + 16$

2) $\frac{6b-7}{10} = \frac{b}{4}$

3) $33 = 3(r + 4)$

4) $-2(g - 3) - 4 = 18$

5) $12 - \frac{4}{5}(x + 15) = 4$

6) $4(3m - 2) = 8(2m + 3)$

7) $7x + 5(x - 1) = -5 + 12x$

8) $6x - (3x - 8) = 20$

8) Solve for v .

$$\frac{5}{9}v + w = z$$

RADICALS:

Simplify the following radicals. No decimals. Show work!

1) $\sqrt{32}$

2) $3\sqrt{18}$

3) $\sqrt{5} \cdot \sqrt{10}$

4) $\frac{\sqrt{6}}{\sqrt{12}}$

5) $\sqrt{\frac{72}{6}}$

6) $\sqrt{\frac{35}{15}}$