Algebra 2
Summer Word Packet, 2019
Mr. Stiff

Welcome to Algebra 2!

This packet is designed to help you review the skills you will constantly be drawing upon in your study of Algebra 2. While you can and may complete this packet at any time over the summer, it would be wise to review this material in the two or three weeks immediately before the start of the school year.

In addition to completing this packet, please do the following before the start of the school year:

- Purchase a T1-34 Multiview calculator. (You may email me at jstiff@latinpcs.org with a picture or a link prior to purchasing, if you would like me to verify that you are purchasing the correct calculator).
- Purchase a three-ring binder with plenty of lined and graph paper. You will need this in class daily.

I look forward to seeing you in August!

Best,

Mr. Stiff

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I. Solving Equations.

1. In your own words, explain what it means to "solve an equation".

2. Solve: $3x + 5 = 23$

3. Solve: $3y - 5 + 8y = 16$

4. Solve: $-2(5p + 1) = -32$

5. Solve: $2(8g - 1) = 4(3p + 5)$

6. Solve: $-21 = 3x - 2(x + 5)$

7. Solve: $\frac{x}{3} = -7$

8. Solve: $\frac{-3x}{4} = -9$

9. Solve: $\frac{x+7}{2} = 11$

10. Solve: $\frac{21}{x} = 3$

11. Solve: $\frac{x}{3} = \frac{18}{54}$

12. Solve: $\frac{x-2}{3} = \frac{x+1}{12}$

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II. "Solve for ____" – Isolating a variable.

Solve the following equations for the specified variable. Your answer will have variables in it!

1. Solve for x: $\boldsymbol{x + y = g}$

2. Solve for y: $\boldsymbol{x + y = g}$

3. Solve for g: $\boldsymbol{x + y = g}$

4. Solve for x: $\boldsymbol{3x - y = 10}$

5. Solve for y: $\boldsymbol{3x - y = 10}$

6. Solve for g: $\boldsymbol{2x = 10g - 7}$

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III. **Know your basic exponents!** You will be greatly helped in your study of Algebra 2 if you **memorize** these basic exponent facts. Fill in the blanks with the correct values, and then commit them to memory. Making flashcards would be a great way to practice.

1. Base two

   $2^2 =$ ___ $2^3 =$ ___ $2^4 =$ ___ $2^5 =$ ___ $2^6 =$ ___

2. Base three

   $3^2 =$ ___ $3^3 =$ ___ $3^4 =$ ___

3. Base four

   $4^2 =$ ___ $4^3 =$ ___ $4^4 =$ ___

4. Base five

   $5^2 =$ ___ $5^3 =$ ___ $5^4 =$ ___

5. Base six

   $6^2 =$ ___ $6^3 =$ ___

6. The rest of the squares (and an important cube)

   $7^2 =$ ___

   $8^2 =$ ___

   $9^2 =$ ___

   $10^2 =$ ___ $10^3 =$ ___

   $11^2 =$ ___

   $12^2 =$ ___

   $13^2 =$ ___

   $14^2 =$ ___

   $15^2 =$ ___

   $20^2 =$ ___

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IV. **Reducing Fractions.** Write each fraction in completely reduced form. Do **not** convert any improper fractions to mixed-number form. We rarely if ever use mixed numbers in Algebra 2. Improper fractions are just fine.

1. $\frac{2}{6} =$

2. $\frac{10}{15} =$

3. $\frac{45}{20} =$

4. $\frac{57}{12} =$

5. $\frac{200}{32} =$

6. $\frac{96}{48} =$

7. $\frac{21}{35} =$

8. $\frac{16}{64} =$

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V. Adding and Subtracting Fractions and Whole Numbers. Watch out for like vs. unlike denominators, and be sure to write your final answer in completely reduced form.

1. $\frac{2}{5}+\frac{1}{5}=$

2. $\frac{6}{11}-\frac{3}{11}=$

3. $\frac{2}{5}+\frac{1}{10}=$

4. $\frac{3}{21}+\frac{1}{7}=$

5. $\frac{4}{9}+6=$

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

7. $8-\frac{3}{4}=$

8. $\frac{3}{8}+\frac{1}{5}=$

9. $\frac{2}{11}+5=$

10. $\frac{7}{15}-8=$

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VI. Multiplying and Dividing Fractions and Whole Numbers. Be sure to write your answer in completely reduced form.

1. $\frac{2}{5} \bullet \frac{1}{5} =$

2. $\frac{1}{6} \bullet 5 =$

3. $\frac{3}{7} \bullet \frac{2}{5} =$

4. $-11 \bullet \frac{2}{7} =$

5. $\frac{1}{2} \bullet \frac{1}{3} =$

6. $\frac{3}{4} \div \frac{1}{2} =$

7. $\frac{6}{7} \div 8 =$

8. $\frac{5}{6} \div \frac{1}{4} =$

9. $20 \div \frac{9}{10} =$

10. $\frac{\frac{1}{2}}{\frac{4}{5}}$

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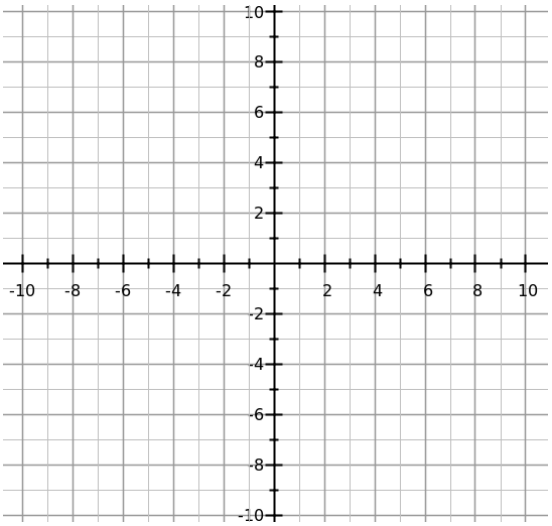
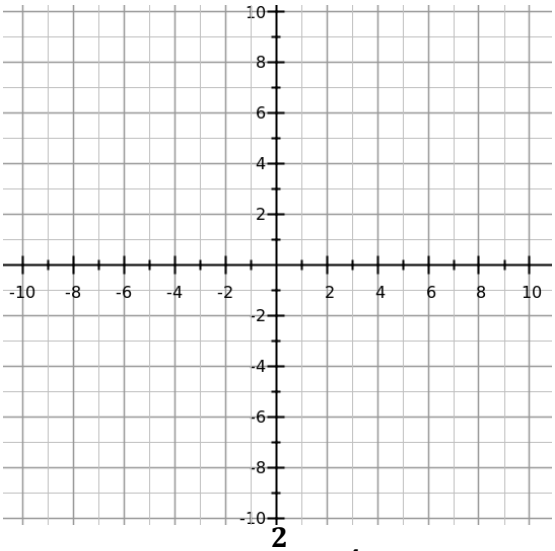
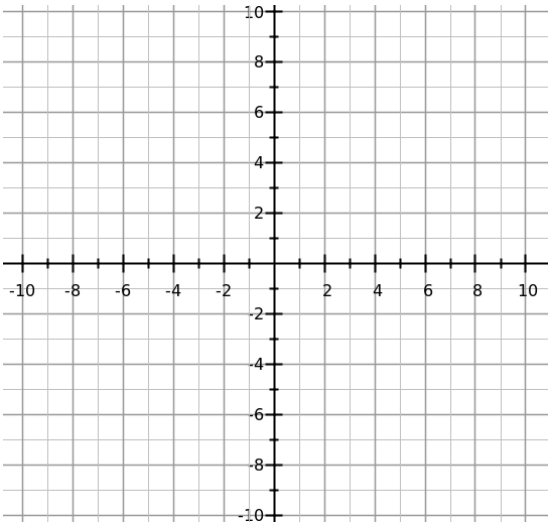
VII. Graphing Linear Functions. Graph the following lines.



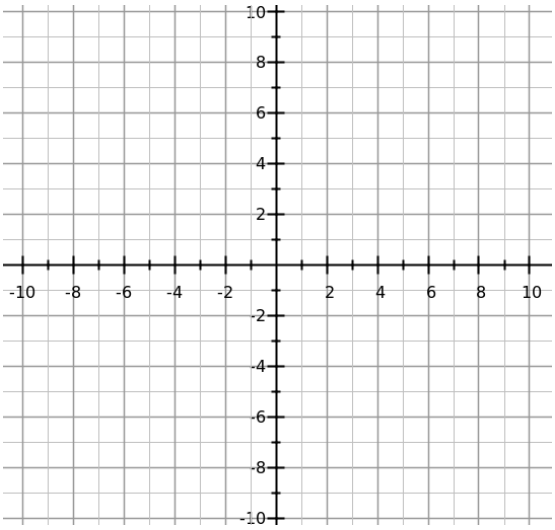
$y = 2x - 1$



$y = -\frac{2}{3}x + 4$



$y = -3$



$2x - 4y = 12$

x-intercept: (___, ____)	y-intercept: (___, ____)

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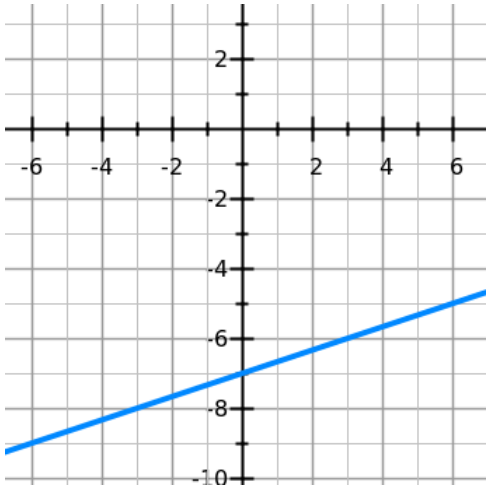
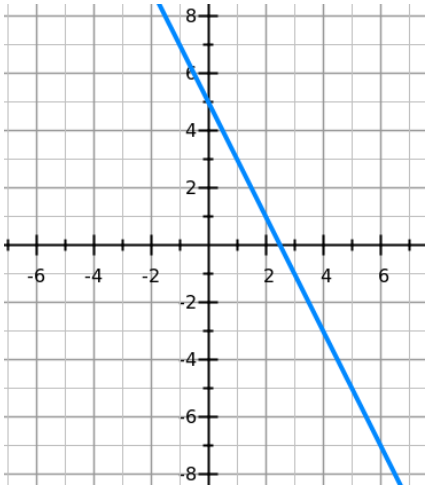
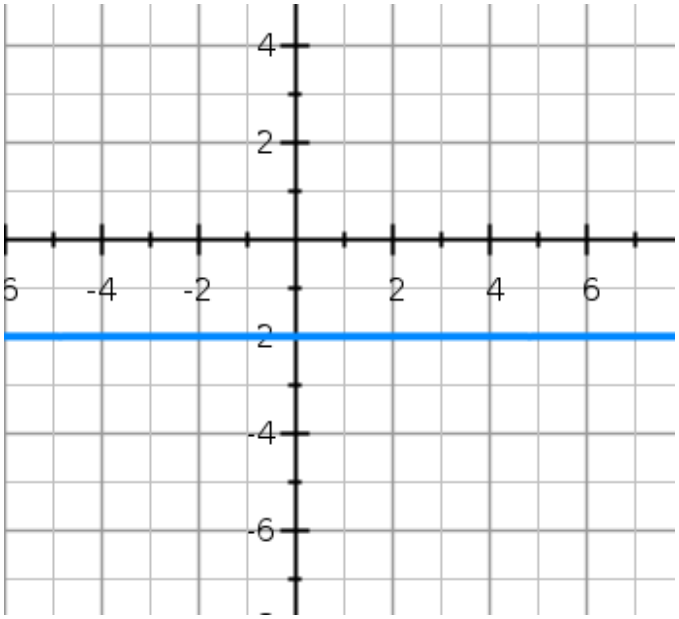
VIII. Writing Linear Equations from a Graph. Write the slope-intercept form equation for the following lines.



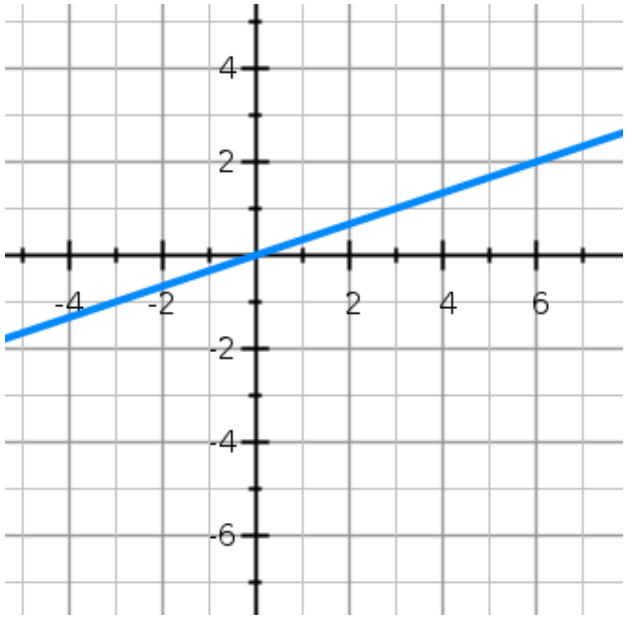
Equation: _____



Equation: _____



Equation: _____



Equation: _____

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IX. Writing Linear Equations.

1. Write a slope-intercept form equation for the line that has a y-intercept of negative seven and a slope of three.

2. Write a slope-intercept form equation for a line that is *parallel* to the line in question number fourteen.

3. Write a slope-intercept form equation for the line that passes through (2, 5) and (3, 8).

4. Write a slope-intercept form equation for the line that passes through (2, 5) and is parallel to the line: $y = -4x + 1$

5. Write a slope-intercept form equation for the line that passes through (1, 3) and is perpendicular to the line: $y = -\frac{1}{2}x + 1$