



Summer 2016

Dear incoming Algebra II student,

You have been enrolled in Algebra II for the 2016-17 school year, which is now a required course and must be successfully completed to earn one of the four required mathematics credits for graduation.

In order to make sure that you are prepared for the school year, independent practice over the summer to refresh Algebra 1 skills is mandatory. A review packet has been made available online on the homepage of <http://www.sylvanianorthview.org> (works for both Northview and Southview) and we ask that you spend time this summer working on this. The problems compiled to create the packet require skills that you should have mastered in your Algebra 1 course. Nonetheless, we are aware that you may have questions while completing the packet. Within the assignment, you will find links to online videos that will help you with the topics on the review. We will focus our instruction during the first few weeks of school on this prerequisite material to briefly revisit the concepts and answer any unresolved questions.

****Expect a minimum of 2-3 hours to complete all problems. (This does not include time to review, watch videos, ask questions, etc.)****

Subsequently, students enrolled in Algebra II will be given a test covering Chapters 1-3 in September, approximately two weeks into the school year, to assess mastery of the fundamental skills included in the review packet. Students will also be given a MathXL assignment during the first week of the year.

That assignment will be combined with this review packet for a graded assignment. These will be used to determine necessary intervention and appropriate course placement. If the diagnostic test and/or intervention establishes that you have been misplaced, recommendations for course transfers will be made on an individual basis.

If you have questions, you can email them to Greg Christy at gchristy@sylvaniaschools.org (Northview) or Melissa Tusing at mtusing@sylvaniaschools.org (Southview). We will check email periodically during the summer and respond to you accordingly.

Thank you,

Northview and Southview Algebra 2 Teachers

Name: _____

**Algebra II: Summer Preparation
Chapters 1-3**

Please complete the following problems in order to prepare for the Chapters 1-3 Test that you will be taking at the beginning of your Algebra II course. All work must be done on a separate sheet of paper. This will be due the first week of school.

CHAPTER 1 Practice Problems

1. Find the value of $4 + 6^2 \div 9 - 3$.

2. Evaluate $\frac{5a - b^2}{3c}$ if $a = 4$, $b = 3$, and $c = 2$.

- Need assistance with order of operations? Check out a bundle of resources at: https://www.khanacademy.org/math/arithmetic/multiplication-division/order_of_operations/v/introduction-to-order-of-operations

For 3 & 4, evaluate each expression if $a = 3.5$ and $b = -10$.

3. $-|b + 2a|$

4. $|-3 - a| - \left| \frac{b}{2} \right|$

- Need assistance on how to simplify expressions with absolute values? Check out some resources at: https://www.khanacademy.org/math/arithmetic/absolute-value/abs_value_tutorial/v/absolute-value-1

5. Use $I = prt$, the formula for simple interest over t years, to find I when $p = \$2000$, $r = 6\%$, and $t = 18$ months.

Name the sets of numbers to which each number belongs.

6. $\sqrt{16}$

7. -2.5

8. $\frac{7}{9}$

- Need assistance on sets of real numbers? Check out this resource: <http://zonalandeducation.com/mmts/miscellaneousMath/typesOfNumbers/typesOfNumbers.html>

9. Simplify $\frac{1}{5}(10x - 15) + 4(2x - 5)$

Solve each equation.

10. $5n - 3 = 12$

11. $7x - 10 = 4x + 11$

12. $|6w+3|=9$

13. $|x-4|-5=-2$

- Need assistance on solving equations with absolute value? Check this out:
<https://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-equations>

Write an equation and solve the problem.

14. The length of a rectangular garden is 7 feet longer than its width. The perimeter of the garden is 38 feet. Find the width and length of the garden.

For 15-20, solve each inequality. Then, graph the solution set on a number line.

15. $10t - 14 < 6$

16. $3(4x - 2) \geq 7x + 19$

17. $-7 < 9x + 2 < 11$

18. $5n + 7 < 2$ or $17 - 2n \leq 11$

19. $|x - 5| > 3$

20. $|2x + 1| \leq 9$

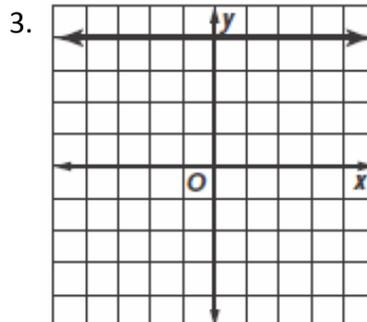
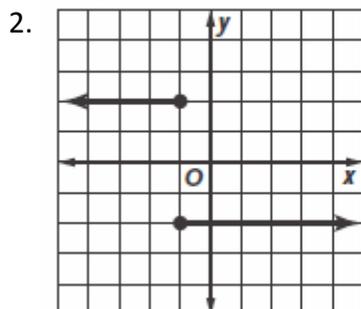
- Need assistance on absolute value inequalities? Check out:
<https://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-inequalities>

21. Write an inequality and then solve: *The 25 coins in Danielle's piggy bank have a value of at least \$1.44. The bank contains only nickels and dimes. What is the fewest number of dimes that could be in the bank?*

CHAPTER 2 Practice Problems

1. Graph the relation $\{(0, 0), (2, 4), (-4, 0), (4, 0)\}$ and find the domain and range. Then determine whether the relation is a function.

For 2-3, determine whether each relation is a function.



For 4-5, find each value if $f(x) = -3x + 2x^2$ and $g(x) = -4x^2 + 2x - 3$.

4. $f(-2)$

5. $g(a)$

For 6-7, state whether each equation or function is linear. If no, explain your reasoning.

6. $f(x) = 100x - 37$

7. $xy - 60 = 0$

8. Find the x -intercept and the y -intercept of the graph of $4y - 12 = 3x$.

- Need assistance with intercepts? Check out:

https://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/graphing_with_intercepts/v/graphing-using-x-and-y-intercepts

For 9-11, graph the equation or inequality. If your struggling, make a table of x & y values!

9. $3y = 2x - 9$

10. $x > 2y - 4$

11. $y \leq |x + 1|$

12. Graph the line passing through $(3, -2)$ that is perpendicular to the graph of $x = -3$.

13. Write an equation in slope-intercept form for the line that has a slope of -1 that passes through $(-4, 3)$.

14. Write an equation for the line that passes through $(2, -5)$ and is parallel to the line whose equation is $5x + 2y = 6$.

- Need assistance with slope-intercept form? Check out:

<https://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/equation-of-a-line/v/graphing-a-line-in-slope-intercept-form>

For 15-16, use the set of data in the table.

The table below shows the relationship between the number of phone calls made and the number of tickets sold during a fundraising campaign by 6 callers.

Calls Made (n)	8	9	7	8	6	12
Tickets Sold (t)	16	17	15	15	12	25

15. Draw a scatter plot for the data.

16. Use two ordered pairs to write a prediction equation. Then use your prediction equation to predict the number of tickets sold when 16 calls are made.

- Need assistance with this scatter plot? Check out:
<https://www.khanacademy.org/math/probability/regression/regression-correlation/e/plotting-the-line-of-best-fit>

CHAPTER 3 Practice Problems

For 1-2, solve each system of equations by graphing.

1. $x + y = 5$
 $2y = x - 2$

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

For 3-4, describe each system of equations as consistent and independent, consistent and dependent, or inconsistent.

3. $3x - 4y = 5$
 $6x - 8y = -5$

4. $2x - 7y = 14$
 $x + 3y = 6$

For 5-6, solve each system of equations by using substitution.

5. $4x - y = 10$
 $y = 3x - 6$

6. $x - y = 6$
 $3x + 2y = -22$

For 7-8, solve each system of equations by using elimination.

7. $5x + 2y = 1$
 $2x + 3y = 7$

8. $5x - 3y = 16$
 $2x + 7y = -10$

For 9-10, solve each system of inequalities by graphing.

9. $2x - 3y \geq -3$
 $3y > -2x - 6$

$x + 3y \geq 6$
10. $y < \frac{3}{2}x - 2$

- Need assistance with systems of equations? Check out this awesome resource:
<https://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/fast-systems-of-equations/v/solving-linear-systems-by-graphing>