Algebra 2 Chapter 2

COMPLETED NOTES & SOME ANSWERS AT THE BOTTOM OF THIS PAGE

All assignments except for 2.3 require graph paper, so be sure to have some on hand. (Or go to http://www.print_AAgraphpaper.com/)

Week of 9/23

Friday: Notes 2.1 Pop Rally Schedule
Hwk: 2.1 p. 59 #1-11 odd, 12-21, 23-31 odd, 36-46, 47*, 48, 49

Week of 9/26

Monday: Notes 2.2
Hwk: 2.2 p. 67 #10, 17-45 odd, 51-53, 66, 82, 86, 87, 92, 93

Tuesday: Notes 2.3
Hwk: 2.3 p. 74 #5-8, 13, 14, 17, 18, 23-27, 30-34, 46, 47, 52*, 59

Wednesday: Notes in packet page 12.15 on Piecewise Functions
Hwk: Packet Page 14.15

Thursday: Practice "Are you Squared?" on packet pages 23-24, packet pages 27, 28 #5-8
Hwk: Packet Pages 29 to 31 - Line of Best Fit

Friday: Notes 2.4 Packet Page 28 #7, 8
Hwk: 2.4 p. 81 #8-9 odd, (a) 8, 11, 13, 20, 23 with calc graphing and linreg), 22, 37, and p.75 #3-6

Week of 10/3

Monday: Review 2.1-2.3
Hwk: Packet Pages 16-19

Tuesday: Quiz 2.1 - 2.3 (no calculators except 2.3 direct variation)
Hwk: Packet Pages 25-28

Wednesday: Notes 2.5
Hwk: 2.5 p. 90 #3-11 odd, 29-32, 33-49 odd, 50, 60-63, 67, 76, Quiz Correction

Thursday: Notes 2.6
Hwk: 2.6 p. 97 #1-9, 12, 18, 19, 23, 27, 33-36, 45, 46, and p. 100 end-point Quiz #5-8, 10

Friday: Practice 2.5 and 2.6
Hwk: Notes Packet Page 35 #1-6, 8-20 even and Packet Page 40 all problems

Week of 10/10

Monday: NO SCHOOL

Tuesday: NO SCHOOL

Wednesday: Notes 2.7
Hwk: 2.7 p. 104 #1-17 odd, 24, 30, 36-42, 44, 45, 48-52, 60-63

Thursday: Quiz 2.4 - 2.6
Hwk: Notes 2.8 notes due
Hwk: Chapter 2 Review p. 109 #1-5, 7-19 odd, 21-25, (a) 26 & 28 with calc graphing and linreg), 33-36, 42, 45, 46

Friday: Review - Review Game
Hwk: Notes Packet Page 44 to 48

2 Optimized Practice Tests

Week of 10/17

Monday: Review - MC Chapter 2 Test (5 questions from chapter 1 & 5 questions from chapter 2)
Hwk: STUDY: Finish Quiz Corrections

Tuesday: CHAPTER 2 TEST
Hwk: DVMAP

Handout and Completed Notes For Chapter 2:
Chapter 2 homework list
Chapter 2 Test Answers
Completed 2.1 notes
Completed 2.2 notes
Completed 2.3 notes
Instructions: Line of Best Fit
Complete: Piecewise Function Introduction
Completed: Piecewise Function practice pg 14 and 15
Page 15 key
Page 26 to 28 key
Page 29 to 31 key
Flash 16 to 18
Completed 2.4 notes
2.4 HWK answers
Completed 2.5 notes
2.5 HWK answers
Completed 2.6 notes
2.6 HWK answers
Completed 2.7 notes
2.7 HWK answers
Chapter 2 Practice Key
Lesson 2-7

Lesson Objectives

✓ Graphing linear inequalities
✓ Graphing absolute value inequalities

NAEP 2005 Strand: Algebra
Topic: Equations and Inequalities
Local Standards: ____________________________

Vocabulary

A linear inequality is an inequality in 2 variables whose graph is a region of the coordinate plane that is bounded by a line.
To satisfy the inequality, $y$-values must be greater than those on the boundary lines.

A **solid** boundary line indicates that the line is part of the solution.

Choose a test point above or below the boundary line.

The test point $(0, 0)$ makes the inequality **true**.

Shade the region containing this point.

$(0, 0)$

$2(0) + 3(0) \leq 6$

$0 \leq 6$ yes
Examples

1) Graphing a Linear Inequality  Graph \( y > \frac{3}{2}x + 1 \).

**Step 1** Graph the boundary line

\[ y = \frac{3}{2}x + 1 \]

Since the inequality is greater than, not greater than or equal to, use a **dashed** boundary line.

**Step 2** Since the inequality is greater than, y-values must be **greater** than those on the boundary line. Shade the region above the boundary line.

\[ 2 > 3 + 1 \]

\[ 2 > 4 \text{ NO} \]
2 **Graphing a Linear Inequality** A restaurant has only 15 eggs until more are delivered. An order of scrambled eggs requires 2 eggs. An omelet requires 3 eggs. Write an inequality to model all possible combinations of orders of scrambled eggs and omelets the restaurant can fill until more eggs arrive. Graph the inequality.

<table>
<thead>
<tr>
<th>Relate</th>
<th>number of eggs needed for ( x ) orders of scrambled eggs</th>
<th>plus</th>
<th>number of eggs needed for ( y ) orders of omelets</th>
<th>is less than or equal to 15</th>
</tr>
</thead>
</table>

**Define** Let \( x \) = the number of orders for scrambled eggs. Let \( y \) = the number of orders for omelets.

**Write** \( 2x + 3y \leq 15 \)
Step 1
Find two points on the boundary line.

When \( y = 0 \), \( 2x + 3(0) = 15 \)
\[
\begin{align*}
2x & = 15 \\
x & = \boxed{7.5}
\end{align*}
\]

When \( x = 0 \), \( 2(0) + 3y = 15 \)
\[
\begin{align*}
3y & = 15 \\
y & = \boxed{5}
\end{align*}
\]

Graph the points \( (7.5, 0) \) and \( (0, 5) \). Since the inequality is less than or equal to, use a solid boundary line.

Step 2
Since the inequality is less than, \( y \)-values must be less than those on the boundary line. Shade the region below the boundary line.

All ordered pairs with whole-number coordinates in the shaded area and on the boundary line represent a combination of \( x \) orders of scrambled eggs and \( y \) orders of omelets that the restaurant could fill.

\( (0,0) \) \( 0 + 0 \leq 15 \)

True
Graphing Absolute Value Inequalities

Graph \( y \geq |2x| - 3 \).

Since the inequality is greater than or equal to, the boundary is solid and the shaded region is above the boundary.

\[ y = |2x| - 3 \]

Vertex \((0, -3)\)

Slope \(= 2\)

open up

\(0 \geq 0 - 3\) \(0 \geq -3\) yes
4 Writing Inequalities Write an inequality for the graph. The boundary line is given.
Boundary: \( y = -\frac{1}{2}x + 3 \)

The boundary line is \( \underline{\text{ }} \). The shaded region is \( \underline{\text{ }} \) the boundary. This is the graph of \( y \square -\frac{1}{2}x + 3 \).
Quick Check

1. Graph each inequality.
   a. $4x + 2y \leq 4$
   b. $y \geq 3x$
   c. $\frac{x}{3} < -y + 2$

① Graph the line
② Test a point to see which side to shade.

$y \leq 2 - 2x$
\[ m = \frac{-2}{1} \]
Test $(0,0)$
$0 \leq 2 - 2(0)$
$0 \leq 2$

$y \geq 3$
$1 \geq 3$

$0 < -\frac{y}{3}(0) + 2$
$0 < 2$
2. Graph each absolute value inequality.
   a. \( y > -|x + 2| - 3 \)

   \[ x + 2 = 0 \]
   \[ x = -2 \]

   \[ y > -5 \]

   \[ y > -3 \]

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3. Write an inequality for each graph.

a. 

\[ y = |x-c| + d \]

b. 

\[ y \geq 2x + 5 \]
\[ y = 5 \left| 4x + 1 \right| + 7 \]

\[ = 20 \quad (-\frac{1}{4}, 7) \]