Algebra II Notes- Unit 1

Day 1: Solving Equations & Inequalities

1. $3x + 5 = 7x - 8$

2. $3 - 5(2x - 1) = 3(4x - 1)$

3. $2/3(6x - 9) = 4x + 5$

4. $3(2x - 5) + 6 = 4(2x - 3) + 3$

5. $3(4x - 5) - 5x = 7x - 15$

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Day 2: Solving Compound Inequalities

1. $(2/3)(x + 9) = x + 5$

2. $5/7y - 15 = 5y + 30$

Inequalities-
* When you multiply or divide by a negative, the < > sign switches direction.

	Example w/ Graph	Explanation
$>$		
$<$		
$\geq$		
$\leq$		

3. $\frac{4x - 3}{2} \geq 7$

4. $-\frac{x}{5} + 2 < 4x - 1$

Compound Inequalties-

	Example w/ Graph	**Explanation**
or		
and		

5. $-7 < 2x - 1 \leq 13$

6. $3x + 4 > 2x - 5$ or $2x + 3 < x - 10$

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Day 3: Solving Absolute Value Equations & Inequalities

1. $6x > -36$ or $3x \leq -24$

2. $-20 \leq -6m - 2 \leq 58$

Absolute Value Equations- the distance from 0.

3. $|x| = 13$

4. $|x| = -13$

5. $|x| = 8$

6. $-|x| = -7$

One variable- graph on a number line.

Two variables- graph on a coordinate plane.

7. $|3x - 1| = 14$

8. $2|5x + 2| = 24$

Solve, but check for extraneous solutions (solutions that do not work in the original equation)

9. $|3x + 5| = 5x + 2$

10. $3|2x - 1| + 7 = 37$

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Day 4: Linear equations & Inequalities

1. $6\,|2x + 5| = 6x + 24$

2. $\frac{1}{2}\,|3c + 5| = 6c + 4$

Absolute Value Inequalities are AND/OR equations…

$<, \leq$: AND $>, \geq$: OR- think Great"OR"

3. $|6y - 2| + 4 \leq 22$

4. $3\,|2x - 1| - 5 \geq 16$

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Day 5: Solving formulas for a specified variable.

Solve each equation for the given variable at the end.

1. $5x + a = y$; a

2. $m = 6(p + q)$; q

3. $2x + 3y = 8$; x

4. $xy = 3z$; z

5. $w = 3(x + y + z)$; y

6. $2w - 8y = z$; y

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Day 6: Regression equations and calculator sequences.

Given a set of data; (x, y)- the calculator may be able to find the equation (model) of best fit using the STAT keys.

Type of Equation	Factor	STAT #	What does the equation look like?
Linear	x	4	
Quadratic	x^2	5	
Cubic	x^3	6	
Quartic	x^4	7	
Exponential	#^x	0	

Steps to find the regression equations:

1. Put data into STAT, edit (never delete the L's)
2. After entering the data: press STAT, over to CALC, and choose the best model.
3. ENTER

Steps to finding the r^2 (confidence coefficient):

1. Press 2^{nd} +
2. Go down to Diagnostic On & press ENTER
3. ENTER

This will cut the coefficient on, it will stay on until you reset your calculator or cut it off.

Steps to turn on plots (be able to view points in the coordinate plane):

1. Press y =
2. Up arrow to Plot1
3. ENTER

Steps to put an equation in the y= from the STAT regression:

1. Get STAT equation
2. Press y=
3. Clear any current equations
4. VARS
5. 5: Statistics
6. Go over to EQ
7. ENTER

ASK mode (to evaluation a function without scrolling through the table):

1. 2nd Window (TBLSET)
2. Down to Indpnt & over to Ask
3. ENTER

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Day 7: Linear equations in two variables (LAB)

Day 8: Predict/determine affect on a graph as values change.

Formula for Absolute Value Equations: $y = a|mx + b| + c$; where the vertex = $(-b/m, c)$

If $|a| > 1$ the graph is going to become more narrow; if $|a| < 1$ the graph is going to become wider.

Describe the translation. Name the vertex (maximum or minimum), left or right translation, up or down translation, and "a" affect.

1. $y = |x - 3| + 4$

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

3. $y = -3/5|x - 15| - 7$

4. $y = -7|2x + 8| - 3$

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Day 9: Solving systems of equations by using elimination.

1. $-4x - 2y = -12$
   $4x + 8y = -24$

2. $-2x - 9y = -25$
   $-4x - 9y = -23$

3. $5x + y = 9$
   $10x - 7y = -18$

4. $-3x + 7y = -16$
   $-9x + 5y = 16$

5. $-7x - 8y = 9$
   $-4x + 9y = -22$

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Day 10: Solving systems of equation word problems.

Solve by using elimination.

1. $8x + y = -16$
   $-3x + y = -5$

2. $-4x + 9y = 9$
   $x - 3y = -6$

3. At an ice cream parlor, ice cream cones cost $1.10 and sundaes cost $2.35. One day, the receipts for a total of 172 cones and sundaes were $294.20. How many cones were sold?

4. You purchase 8 gal of paint and 3 brushes for $152.50. The next day, you purchase 6 gal of paint and 2 brushes for $113.00. How much does each gallon of paint and each brush cost?

5. A new parking lot has spaces for 450 cars. The ratio of spaces for full-sized cars to compact cars is 11 to 4. How many spaces are for full-sized cars? How many spaces are for compact cars?

6. A light plane flew from its home base to an airport 255 miles away. With a head wind, the trip took 1.7 hours. The return trip with a tail wind took 1.5 hours. Find the average airspeed of the plane and the average windspeed.

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Day 11: Graphing systems of inequalities.

<, >: Dotted line $\quad\quad$ $\leq$, $\geq$: Solid line

* Any ordered pair in the shaded region is a solution.

Graph.

1. $2x - 3y \leq 21$

2. $y < |x + 5| + 3$

3. $y < 4x - 7$
   $y \geq 1/2x + 4$

4. $y > |x - 2| - 4$
   $y < 1$

5. $y < -|x - 1|$
   $2x - y < 3$

Algebra II Notes- Unit 2