Adv Alg
AA1

Name: _____
Date: _____Pd _____

Absolute Values & Inequalities

LT: I can isolate a variable, manipulating equations with more than one variable (absolute values, inequalities).

Simplify the expressions.

1. | -5|
2. | 18|
3. | -a|

Solve each equation.

4. |x – 2| = 10
5. 3 |a| = 21
6. |-4 b| = 16
7. | x| - 6 = 14
8. | 2 – c | + 3 = 8
9. 6| 2(x – 2) | = 48
10. | x - 3 | + 7 = 8 (x – 1)

Graph the functions on the same graph. Label each graph.

11. $f(x) = |x|$

x	f(x)
-3	
-2	
-1	
0	
1	
2	
3	

12. $g(x) = |x| + 1$

x	g(x)
-3	
-2	
-1	
0	
1	
2	
3	

13. $h(x) = |x - 2| + 1$

x	h(x)
-3	
-1	
0	
1	
3	
5	
6	

Inequalities

REMEMBER:
When dividing by a negative number or multiplying by a negative number, then the inequality sign flips.
Example:

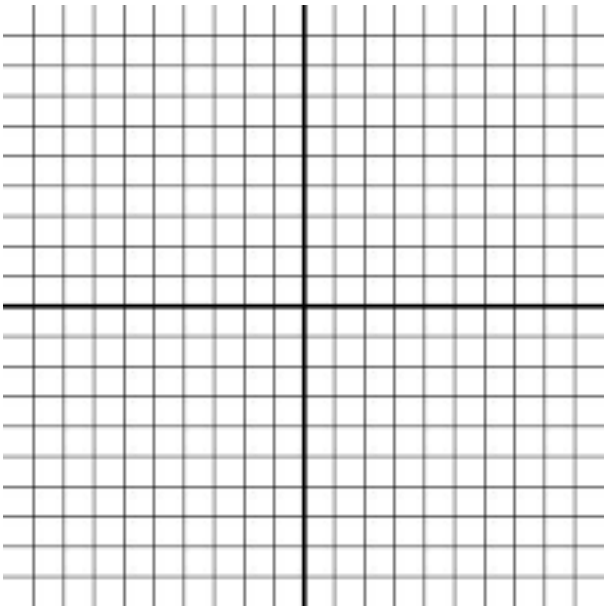
$5 > 2$ [5 is greater than 2]
$(-1)5 < (-1)\ 2$ [multiply both sides by -1, and flip the sign]
$-5 < -2$ [-5 is less than -2, which is a true statement]

Solve each inequality.

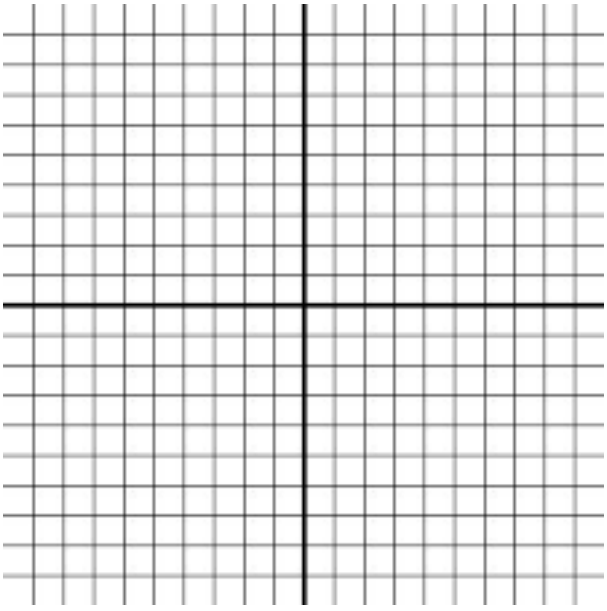
1. $x + 2 \geq 5$
2. $3x + 1 < 12$
3. $2(a - 2) \leq -2$
4. $-5(y + 5) > 15$
5. $3x - 6(x - 1) \geq 9$
6. $-11x + 3 - 4x - 4 \leq 2x$
7. $-4y > y + 25$
8. $18 + r \leq 6 - 3(r + 2)$

Graph each inequality.

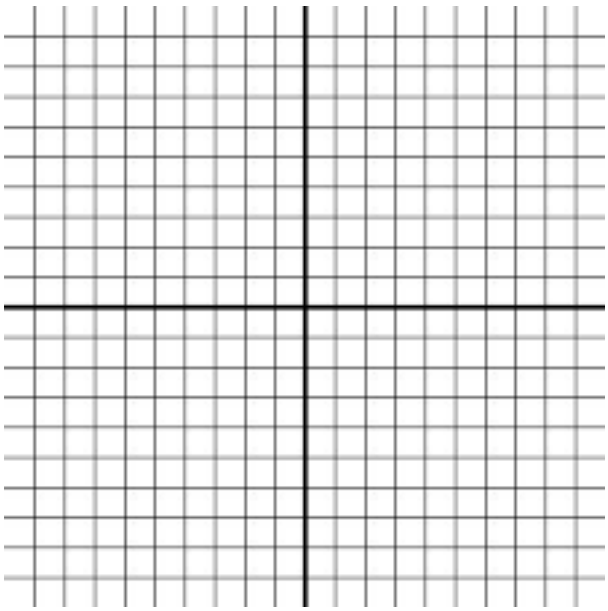
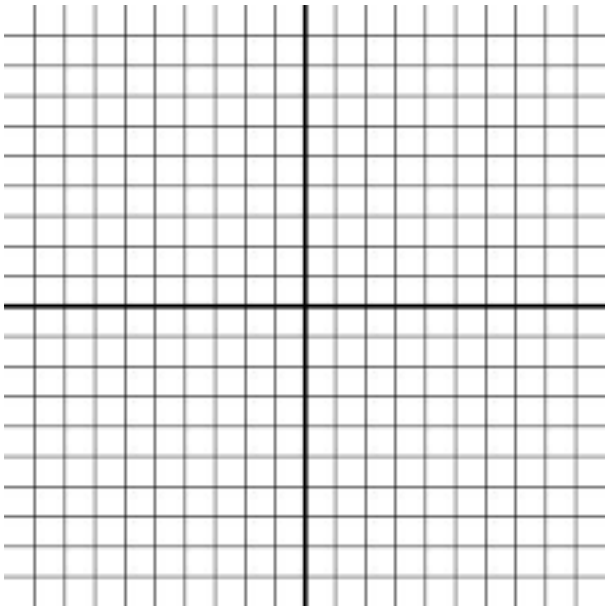
9. $y < -3x + 4$



10. $y \geq -\frac{1}{3}x - 2$



11. $y > \frac{3}{4}x + 2$



12. $y \leq 2x + 5$