Algebra 1 5.5

Solve and graph absolute value inequalities

Write an absolute value inequality from a graph

inequality

absolute value

less than

greater than

floor graphs

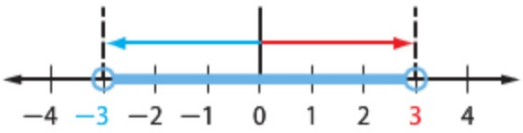
whiteboards

speed dating

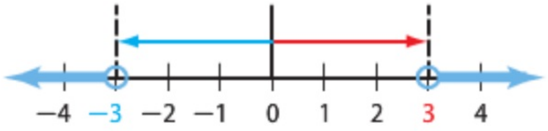
Find the bubble
Less than = Closer
Greater than = Farther
open or closed?

= inside
< outside
> outside

1 Absolute Value Inequalities (<) The inequality $|x| < 3$ means that the distance between x and 0 is less than 3.



2 Absolute Value Inequalities (>) The inequality $|x| > 3$ means that the distance between x and 0 is greater than 3.



$\therefore$

$|\text{Start}| \quad \pm$

$|x-30| < 5$

$|x-70| < 10$

whiteboards

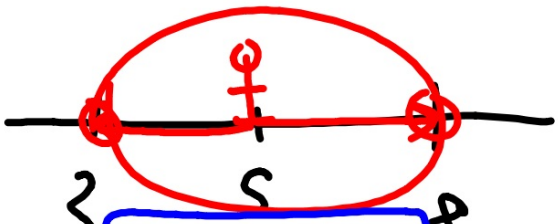
Sol[ ]h inequality. Then graph the solution set.

1. $|a-5|<3$ **2.** $|u+3|<7$

Bubble
Closer or farther?
What's in the middle?

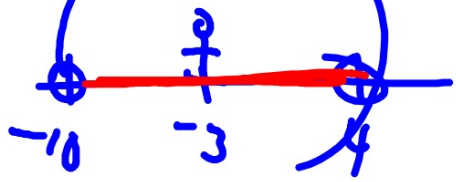
$a-5=-3$ $+5\ +5$ → $a=2$

$a-5=3$ $+5\ +5$ → $a=8$



$u+3=-7$ $-3\ -3$ → $u=-10$

$u+3=7$ $-3\ -3$ → $u=4$



$-10 < u < 4$

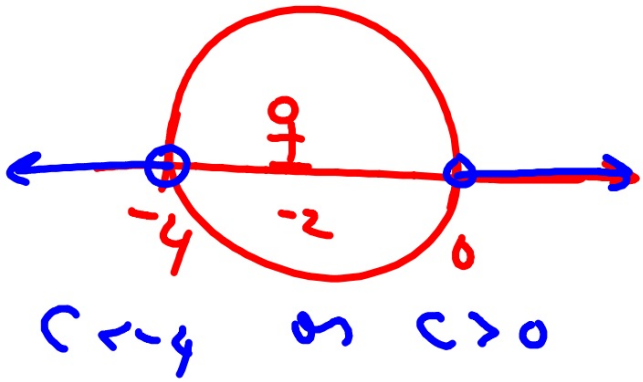
4. $|c+2| > -2$

5. $|n+5|$ ☐ 3

$c+2 = -2$ $c+2 = 2$

$-2 \quad -2$ $-2 \quad -2$

$c = -4$ $c = 0$



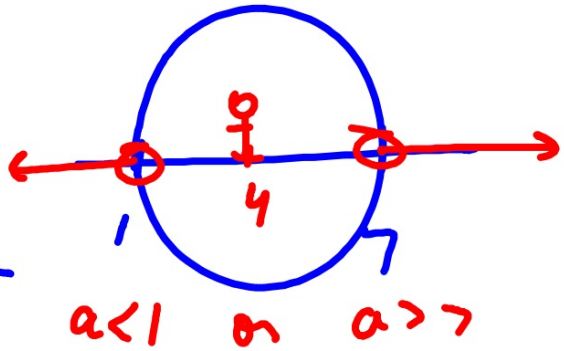
$c < -4$ or $c > 0$

15. $|a + -4| > 3$

$a + -4 = -3$ $\quad a + 4 = 3$

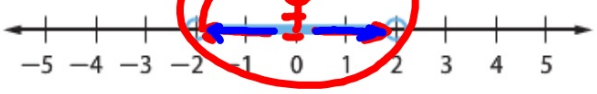
$+4 \quad +4$ $\quad +4 \quad +4$

$a = 1$ $\quad a = 7$



CCSS **REGULARITY** **Write an open sentence involving absolute value for each graph.**

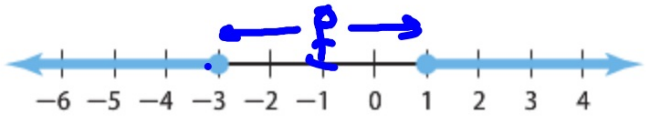
32.



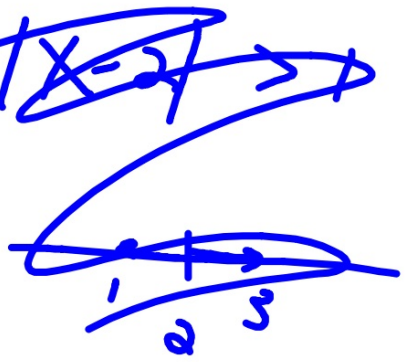
What's in the middle?
Bubble?
Closer or farther?

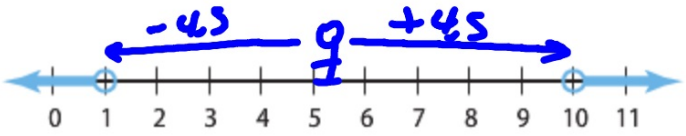
$|x-0|<2$

33.

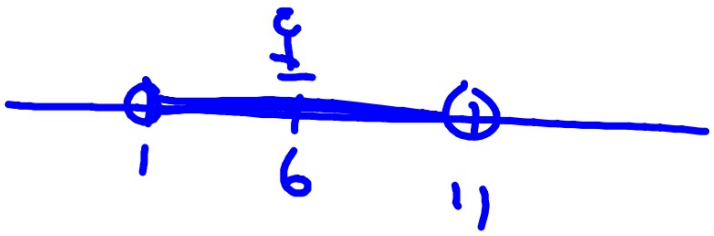
34. 

$|x+1| \geq 2$

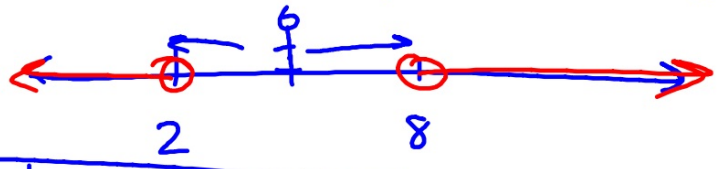


35. 

$|x-5.5| > 4.5$ $|x+-5| < 6$



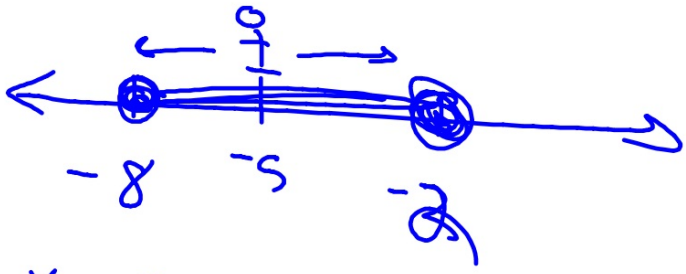
|X - middle| bubble



$|x-5| > 3$

$x - -5$

$x + 5$



$x - -5$

$|x+5| \leq 3$