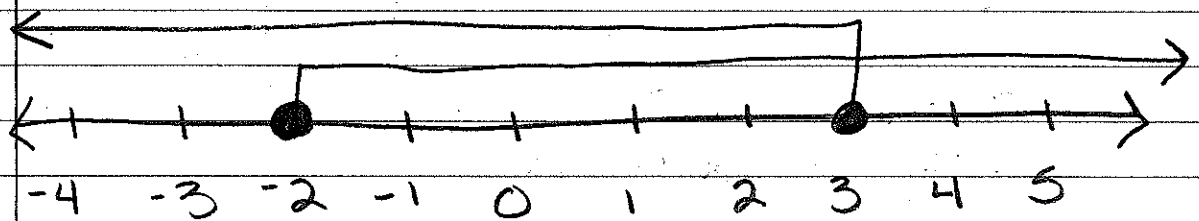
Nov 13th

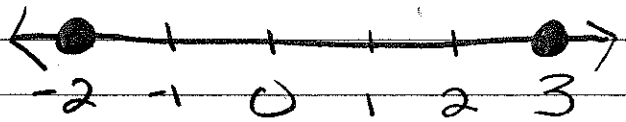
Compound Inequalities

-are 2 inequalities that are joined by the words AND or the word OR



$x \leq 3$ AND $x \geq -2$

$-2 \leq x \leq 3$ AND compound inequality

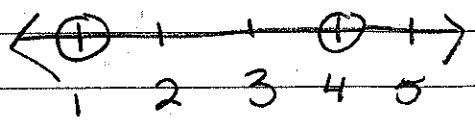


- overlap between the 2 inequalities
- your graph has a line segment
- a solution is any # that makes <u>both</u> inequalities true
- smallest # is <u>ALWAYS</u> on the left

$-4 < r - 5 < -1$

$+5 \quad +5 \quad +5$

$1 < r < 4$

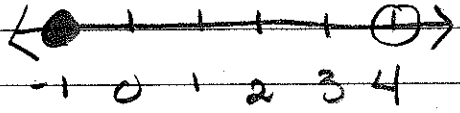


$-3 \leq 2x - x < 7$

$+1 \quad +1 \quad +1$

$\frac{-2}{2} \leq \frac{2x}{2} < \frac{8}{2}$

$-1 \leq x < 4$



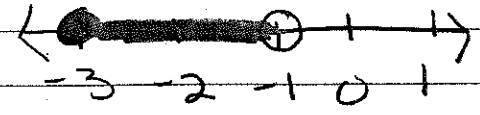
$7 < -3n + 4 \leq 13$

$-4 \quad -4 \quad -4$

$\frac{3}{-3} < \frac{-3n}{-3} \leq \frac{9}{-3}$

$-1 > n \geq -3$

$\boxed{-3 \leq n < -1}$



smallest number on the left

OR Statement

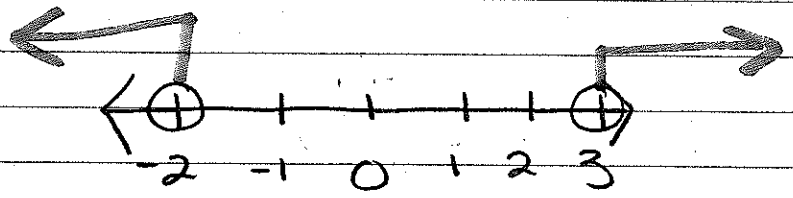
- NO overlap
- on your graph the rays go in opposite directions

$4v + 3 < -5$ OR $-2v + 7 < 1$

$-3 \quad -3 \qquad\qquad -7 \quad -7$

$\frac{4v}{4} < \frac{-8}{4}$ OR $\frac{-2v}{-2} < \frac{-6}{-2}$

$v < -2$ OR $v > 3$

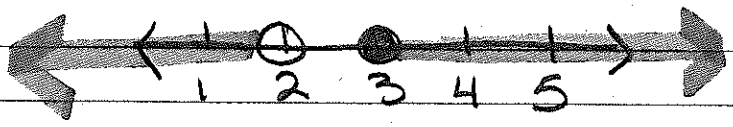


$-2x + 7 > 3$ OR $3x - 4 \geq 5$

$-7 \quad -7 \qquad\qquad +4 \quad +4$

$\frac{-2x}{-2} > \frac{-4}{-2}$ $\qquad$ $\frac{3x}{3} \geq \frac{9}{3}$

$x < 2$ OR $x \geq 3$



$14 \leq \frac{3x+8-4x}{2} < 26$

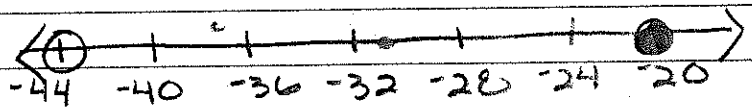
$2\left[14 \leq \frac{-x+8}{2} < 26\right]$

$28 \leq -x+8 < 52$
$-8 \quad -8 \quad -8$

$\frac{20}{-1} \leq \frac{-x}{-1} < \frac{44}{-1}$

$-20 \geq x > -44$

$\boxed{-44 < x \leq -20}$



$14 \leq \frac{-x+8}{2} < 26$

$14 \leq -\frac{1}{2}x + \frac{8}{2} < 26$

$14 \leq -\frac{1}{2}x + 4 < 26$
$-4 \quad -4 \quad -4$

$\left(\frac{2}{-1}\right)10 \leq \left(\frac{-2}{-1}\right)-\frac{1}{2}x < 22\left(\frac{-2}{-1}\right)$

$-20 \geq x > -44$

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#14-19 All
#30-33 All
#36-43 All