

6.4A Intro to "Compound Inequalities"

Compound inequality Notes - GRAPH EACH

a) $x < -3$ or $x > 2$



"THE SOLUTIONS ARE ALL #'S LESS THAN -3, GREATER THAN 2"

"OR" means combine both inequalities.

AND'S
b) $x < 10$ and $x > 6$

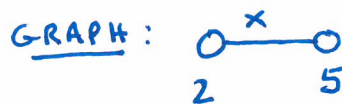


"The solutions are all numbers between 6 and 10"

"AND" means INEQ OVERLAP OR INTERSECT.

Small # use $<$ or $>$ Big # use \leq or \geq

c) $2 < x < 5$

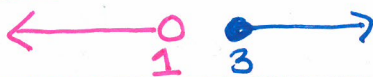


"Solutions are all numbers between 2 and 5"

Solve each **OR** compound inequality and graph its solution.

1) $x \geq 21$ or $3x < 3$

$x \geq 3$ OR $x < 1$



Circle the solution

2) $p + 3 \geq 0$ or $\frac{p}{2} < -5.2$

$p \geq -3$ OR $p < -10$



You MUST include the "OR"

3) $\frac{x}{6} > 1$ or $x + 5 < 9$

$x > 6$ OR $x < 4$



4) $-8 + x \leq -16$ or $\frac{x}{9} > 1$

$x \leq -8$ OR $x > 9$



Solve each **AND** compound inequality and graph its solution.

5) $-16 \leq x - 6 \leq -7$

$-10 \leq x \leq -1$



ISOLATE X

Solution

6) $-24 < 4r < -12$

$-6 < r < -3$



7) $16 \leq a + 10 < 18$

$6 \leq a < 8$



8) $2 \leq \frac{x}{2} \leq 3$

$4 \leq x \leq 6$



Solve each **OR** compound inequality and graph its solution.

9) $-9n \leq -72$ or $n \leq 7$

FLIP

$n \geq 8$ OR $n \leq 1$



10) $-2n > 2$ or $-10n \leq -70$

$n < -1$ OR $n \geq 7$



11) $4n \leq -16$ or $-1 + n < -9$

$n \geq 4$ OR $n < -8$



Solve each **SINGLE AND** compound inequality and graph its solution.

12) $71 > 8 - 9x > -73$

FLIP BOTH INEQ SYMBOLS

$63 > -9x > -81$

$-7 < x < 9$



13) $-7 \leq 8 - 3x < 2$

$-15 \leq -3x < -6$

FLIP

$5 \geq x > 2$

Rewrite so use $<$, \leq symbols to graph

$2 < x \leq 5$



Solve each **AND** compound inequality and graph its solution.

14) $-3x - 7 \leq -1$ and $9x - 1 < 26$

FLIP

$-3x \leq 6$

$9x < 27$

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

Solution



$-2 \leq x < 3$

WRITE AS SINGLE AND

15) $6 - 6n > -30$ and $7 - 6n \leq 13$

$-6n > -36$

$-6n \leq 6$

FLIP

$n < 6$ AND $n \geq -1$

FLIP



$-1 \leq x < 6$