Ch 5.5 - One variable inequalities

12/4/2017

SYMBOLS

$x = y$	$x < y$	$x > y$	$x \leq y$	$x \geq y$
x is equal to y	x is less than y	x is greater than or equal to y	x is less than or equal to y	x is greater than or equal to y

EXAMPLE

$6 = 6$ $\quad -12 < -5$ $\quad 9 > 4$ $\quad 12 \leq 13$ $\quad -7 \geq -7$

PRACTICE

Write the correct sign between the two values.

$\frac{3}{4} \square \frac{15}{20}$ $\quad -5 \square -5.25$ $\quad 8 \square \frac{33}{4}$

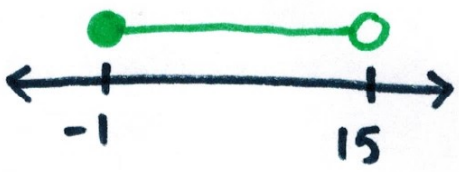
$3-7 \square 2-6$ $\quad (-6)^2 \square 35$ $\quad -1.1 \square 1.1$

GRAPHING

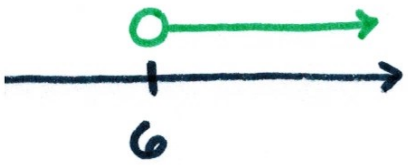
$x < 3$

$x \geq -2$

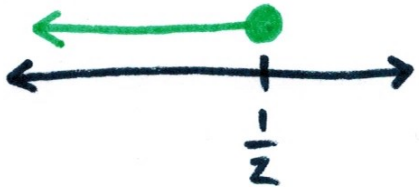
$-1 \leq x < 15$



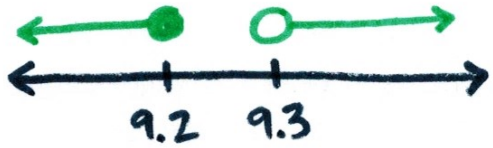
$6 < x$



$\frac{1}{2} \geq x$



$9.3 < x \leq 9.2$



WHITEBOARDS

graphs → inequality, inequality to graph

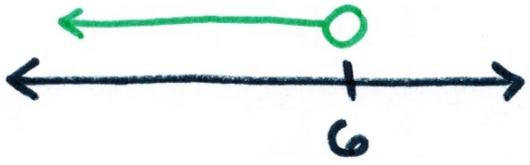
SOLVING INEQUALITIES

$2x - 4 < 8$

$+4 \quad +4$

$\frac{2}{2}x < \frac{12}{2}$

$\boxed{x < 6}$



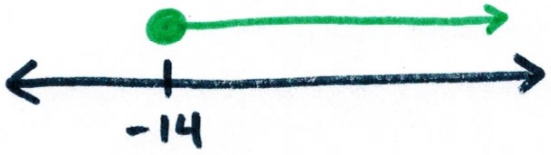
$\frac{x+5}{3} \geq -3$

$\times 3 \quad \times 3$

$x + 5 \geq -9$

$-5 \quad -5$

$\boxed{x \geq -14}$



CHECK!

$2(5) - 4 < 8$

$10 - 4 < 8$

$\boxed{6 < 8}$ ✓

$2(6) - 4 < 8$

$12 - 4 < 8$

$8 < 8$

X

$\frac{-14+5}{3} \geq -3$

$\frac{-9}{3} \geq -3$

$\boxed{-3 \geq -3}$ ✓

$\frac{-11+5}{3} \geq -3$

$\frac{-6}{3} \geq -3$

$\boxed{-2 \geq -3}$ ✓

$17 \geq 7 - x$

$-7 \quad -7$

$10 \geq -x$

$-1 \quad -1$

$\boxed{-10 \leq x}$

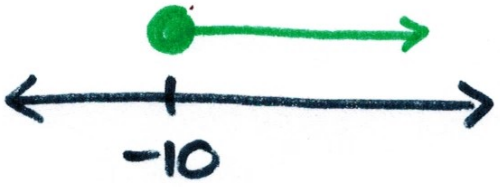
$\frac{-28}{-4} < \frac{-4(x-6)}{-4}$

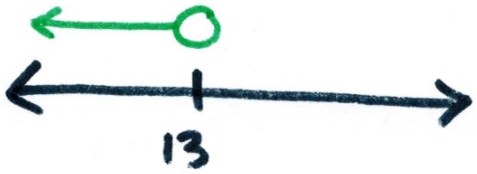
$7 > x - 6$

$+6 \quad +6$

$\boxed{13 > x}$

* When the sign of x changes, the inequality flips





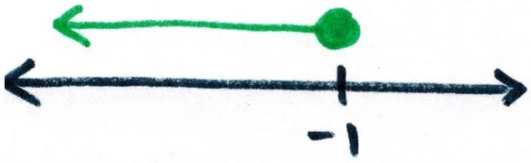
PRACTICE - solve and graph

$3x + 5 \leq 2$

$-5 \quad -5$

$\frac{3x}{3} \leq \frac{-3}{3}$

$\boxed{x \leq -1}$



$\frac{-5(x-8)}{-5} > \frac{20}{-5}$

$x - 8 < -4$

$+8 \quad +8$

$\boxed{x < 4}$