HW review:

p. 373 #37

Blank CD: 70 minutes of music
So far: 25 minutes used up
Song length: 4 min.
How many songs can you fit?

$$\underbrace{70-25}_{\text{remaining time}} \geq 4s$$

$$\frac{45}{4} \geq \frac{4s}{4}$$

$$11.25 \geq s$$

0 – 11 songs

(28) $\frac{3}{4}(8n+^{-}4) < -3(1+^{-}2n)$

$6n+^{-}3 < -3+6n$

NO solution

(16) $-4(2x+-3)<28$

$-8x+12<28$

$\frac{-8x}{-8} < \frac{16}{-8}$

$x > -2$

(38) $46 on supplies

$8.50 each

What is the range of #'s of ornaments I can sell to turn a profit?

n = # of ornaments

$8.5n$ = money I get selling "n" ornaments

$\text{profit} = -46 + 8.5n$

$\text{profit} > 0$

$-46 + 8.5n > 0 + 46$

$+46$

$$\frac{8.5n}{8.5} > \frac{46}{8.5}$$

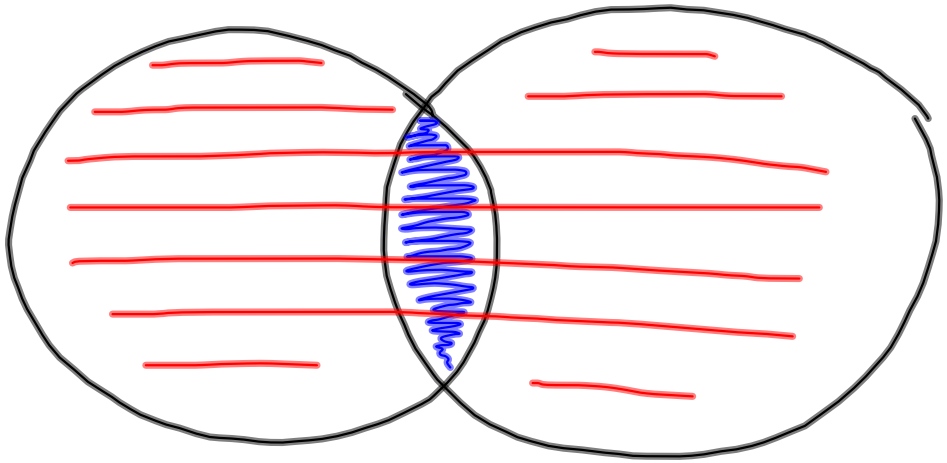
$n \geq 6$ (5.41)

Compound inequalities:

Two (or more) inequalities joined by "and" or "or":

- $x < 7$ and $x < 13$
- $x < 4$ or $x > 12$
- [$x < 7$ and $x > 40$] no solution
- $x > 2$ [and $x > 4$] redundant

Venn diagram:

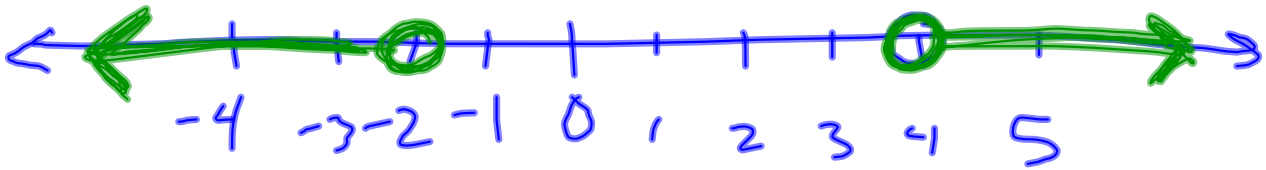


$x < 4$ $x > -2$

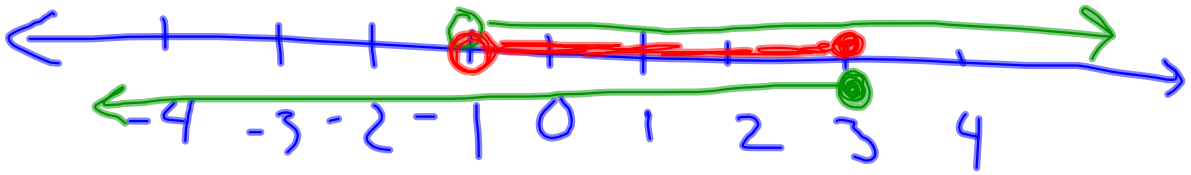
$x < 4$ and $x > -2$

$x < 4$ or $x > -2$

$x > 4$ or $x < -2$



$x > -1$ and $x \leq 3$



"All #'s less than 3 or greater than or equal to 7"

$x < 3$ or $x \geq 7$

"#'s less than or equal to -2 and greater than -6"

$x \leq -2$ and $x > -6$

$-6 < x \leq -2$

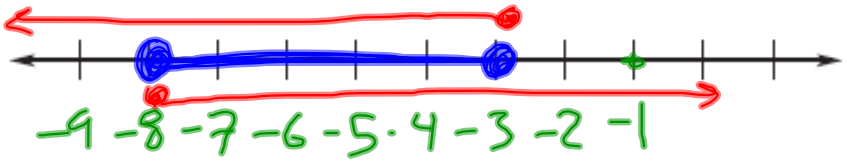
$x > 4$ and $x \leq 7$

$4 < x \leq 7$

Translate the verbal phrase into an inequality. Then graph the inequality.

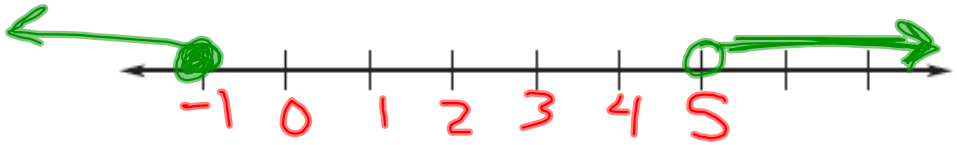
1. All real numbers that are less than or equal to -3 *and* greater than or equal to -8

$x \leq -3$ and $x \geq -8$

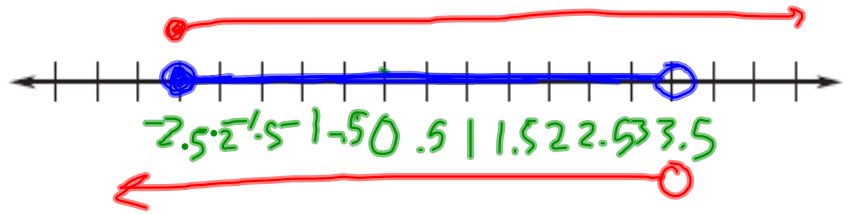


2. All real numbers that are greater than 5 *or* less than or equal to -1

$x > 5$ or $x \leq -1$



3. All real numbers that are greater than or equal to -2.5 *and* less than 3.5



$-2.5 \leq x < 3.5$

Solving compound inequalities:

$$2 < x + 5 < 9$$

"and"

$$-5 \quad -5 \quad -5$$

$$\boxed{-3 < x < 4}$$

solved when "x" is alone in the middle

$$3 < 2x + 7 \leq 11$$

$$-7 \quad -7 \quad -7$$

$$\frac{-4}{2} < \frac{2x}{2} \leq \frac{4}{2}$$

$$\boxed{-2 < x \leq 2}$$

$2x+3<9$ or $3x-6>12$ "or"

$-3 \quad -3$ $+6 \quad +6$

$\frac{2x}{2} < \frac{6}{2}$ $\frac{3x}{3} > \frac{18}{3}$

$x<3$ or $x>6$

Quiz tomorrow over inequalities
(open-notes - your own notes only!)

Homework:

p. 384 4-26(even), 27, 38, 44
→ include number line graphs (if asked)