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§2.5 Compound Inequalities

(Lect. Notes p. 32)

Compound Inequalities (Definition)

- Two inequalities joined by the words "and" or "or" are called compound inequalities. For example,

$x+3<8$ and $x>2$

is a compound inequality.

$\frac{2x}{3} \geq 5$ or $-x+10<7$

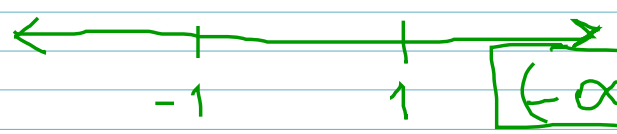
is also a compound inequality.

Solve Compound Inequalities Containing the Word "and"

See lecture notes.

(16) Solve the compound inequality.

(Yellow) $x<-1$ and $x<1$ (blue)



$\boxed{(-\infty,-1)}$

09.15.2015 11:30a TR Int. Alg. Section 2.5 (A9), 5/15, 7:30 AM
9/15/15, 7:30 AM, 1h 13m 3s

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§2.5 Compound Inequalities

(Lect. Notes p 32)

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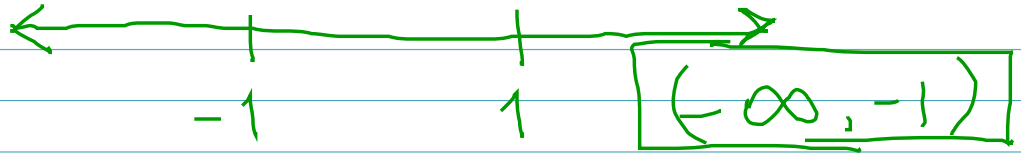
Solve Compound Inequalities Containing the Word "and"

See lecture Notes.

(16) Solve the compound inequality.

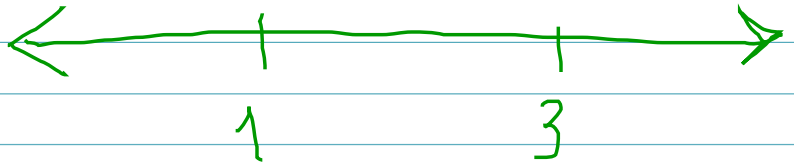
(Yellow) $x \leq -1$ and $x \leq 1$ (blue)



$(-\infty, -1]$

(15) Solve the compound inequality.
Express your answer in interval notation.

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



No overlap No green

No solution $\emptyset$

(34) Solve. Interval.

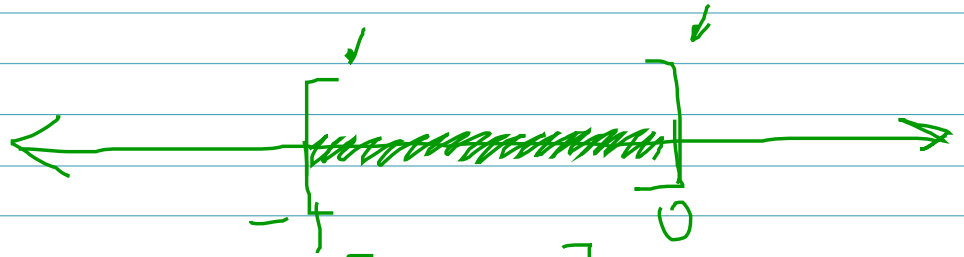
$-x - 8 \geq -8$ and $x + 9 \geq 8$

$+8 \quad +8$ $\quad -9 \quad -9$

$-x \geq 0$ $\quad x \geq -1$

$\frac{-1x}{-1} \geq \frac{0}{-1}$

$x \leq 0$ and $x \geq -1$



$[-1, 0]$

(54) See lecture notes

71, 69, 80, 72, F, F

Average $\dfrac{71+69+80+72+F+F}{6}$

Average $\dfrac{292+2F}{6}$

Average must be "between" 70 and 79 "inclusive"

$70 \leq \text{Avg} \leq 79$

same symbol!!

$70 \leq \dfrac{292+2F}{6} \leq 79$

LCD = 6

Mult. in all 3 zones by LCD

$(6)(70) \leq (6)\left(\dfrac{292+2F}{6}\right) \leq (6)(79)$

$420 \leq 292+2F \leq 474$

$-292 \quad -292 \quad -292$

$\dfrac{128}{2} \leq \dfrac{2F}{2} \leq \dfrac{182}{2}$

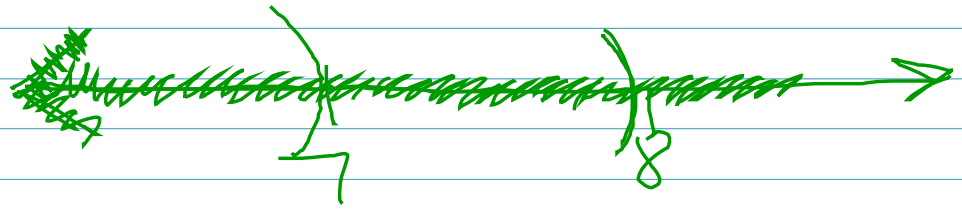
Goal: Get F alone

$64 \leq F \leq 91$

Solve Compound Inequalities Containing the Word "Or"

(24) Solve. Interval

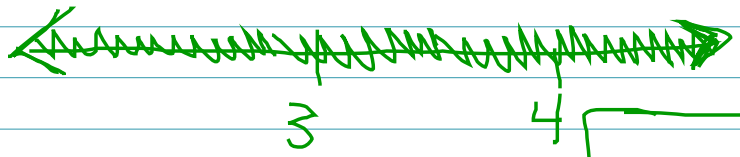
$x < 7$ or $x < 8$



$(-\infty, 8)$

(26) Solve. Interval.

$x > 3$ or $x < 4$



$(-\infty, \infty)$

(29) Solve. Interval.

$-2(x-3) > -4$ or $x + 8 > 11$

$-2x + 6 > -4$ $\quad -8 \quad -8$

$-6 \quad -6$ $\qquad x > 3$

$-2x > -10$

$\frac{-2x}{-2} < \frac{-10}{-2}$

$x < 5$ or

$(-\infty, \infty)$

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Coming Up!

GRAPHING

3.1