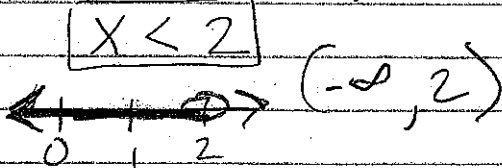
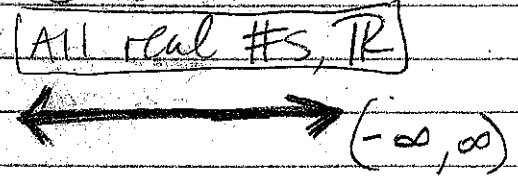


"Or" Inequalities (#4)

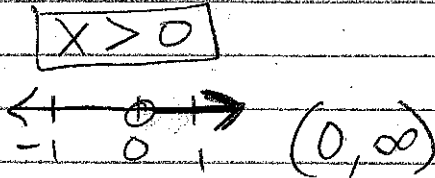
① $x < 2$ or $x < -4$



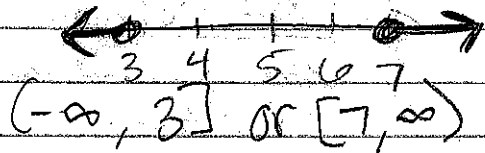
② $x > 3$ or $x < 5$



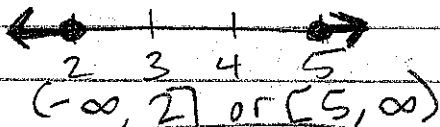
③ $x \geq 5$ or $x > 0$



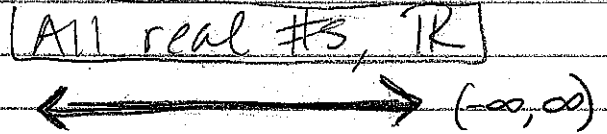
④ $x \leq 3$ or $x \geq 7$



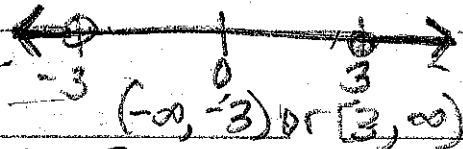
⑤ $x \geq 5$ or $x \leq 2$



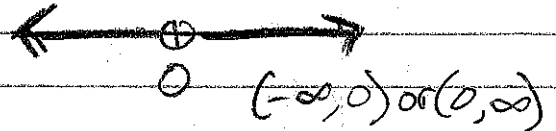
⑥ $x < 4$ or $x \geq -5$



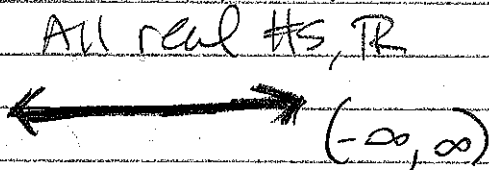
⑦ $x \geq 3$ or $x < -3$



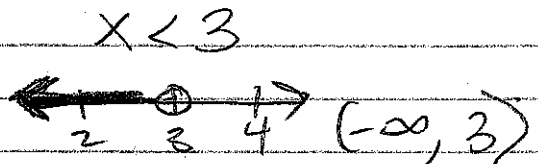
⑧ $x > 0$ or $x < 0$



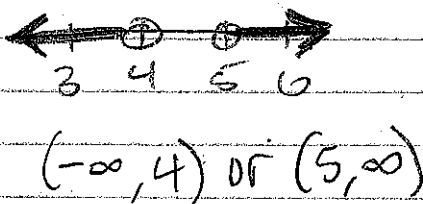
⑨ $x > -2$ or $x < 7$



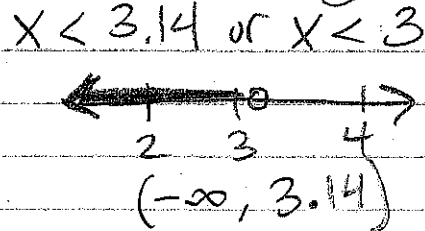
⑩ $x < 3$ or $x \leq -2$



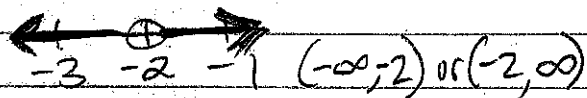
⑪ $x - 2 < 2$ or $x - 5 > 0$
 $x < 4$ or $x > 5$



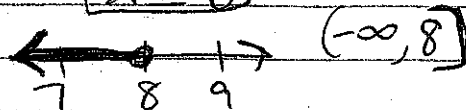
⑫ $x < \pi$ or $-x + 5 > 2$
 $-x > -3$



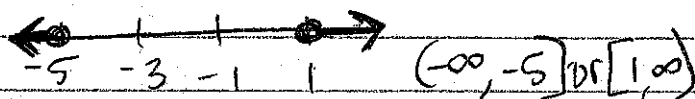
(13) $4x < -8$ or $-3x < 6$
 $x < -2$ or $x > -2$



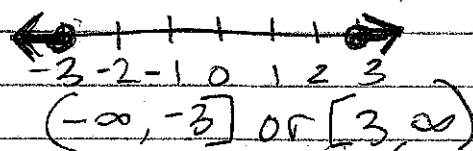
(14) $\frac{1}{4}x \leq 2$ or $5x < 15$
 $x \leq 8$ or $x < 3$
 $x \leq 8$



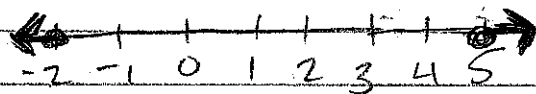
(15) $5x + 12 \leq -13$ or $2x - 1 \geq 1$
 $5x \leq -25$ $2x \geq 2$
 $x \leq -5$ or $x \geq 1$



(16) $5 - 6x \geq 23$ or $8x - 15 \geq 9$
 $-6x \geq 18$ $8x \geq 24$
 $x \leq -3$ or $x \geq 3$



(17) $7x - 5 \geq 30$ or $-2x - 6 \geq -2$
 $7x \geq 35$ $-2x \geq 4$
 $x \geq 5$ or $x \leq -2$ $(-\infty, -2]$ or $[5, \infty)$

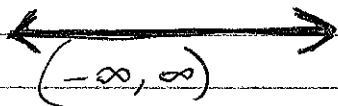


(18) SKIP

(19) $\frac{2}{3}x - 5 \leq -3$ or $3 - \frac{1}{2}x < 3$
 $\frac{2}{3}x \leq 2$ $-\frac{1}{2}x < 0$
 $x \leq 3$ or $x > 0$

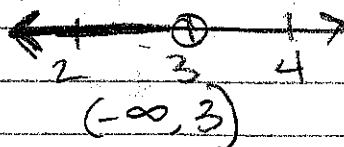
$x \leq 3$ or $x > 0$

All real #s, \mathbb{R}



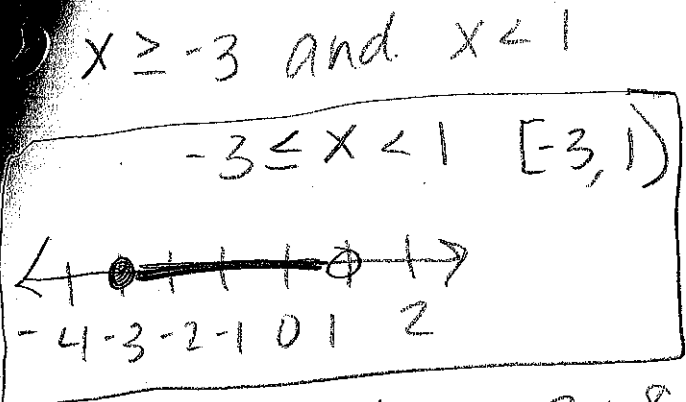
(20) $50 - 22x > -16$ or $-3x \geq 6$
 $-22x > -66$ $-3x \geq 6$
 $x < 3$ or $x \leq -2$

$x < 3$



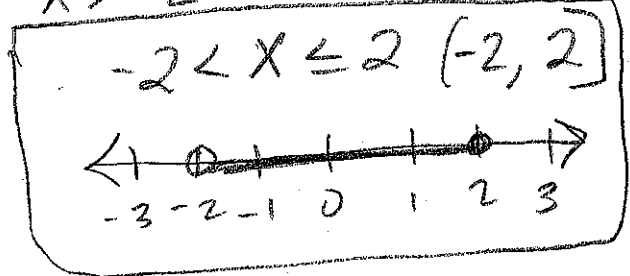
$$\frac{x}{2} \geq -\frac{6}{2} \text{ and } x-1 < 0$$

$$x \geq -3 \text{ and } x < 1$$



$$\frac{-7x}{-7} < \frac{14}{-7} \text{ and } \frac{3x+2}{3} \leq \frac{8}{3}$$

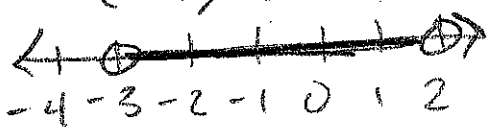
$$x > -2 \text{ and } x \leq 2$$



$$\frac{-8}{+5} < \frac{x-5}{+5} < \frac{-3}{+5}$$

$$-3 < x < 2$$

$$(-3, 2)$$

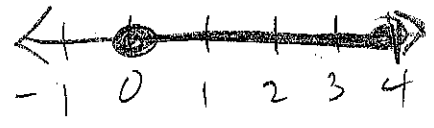


$$1 \leq 4x + 1 \leq 17$$

$$\frac{0}{4} \leq \frac{4x}{4} \leq \frac{16}{4}$$

$$0 \leq x \leq 4$$

$[0, 4]$



(#5)
Female Bug

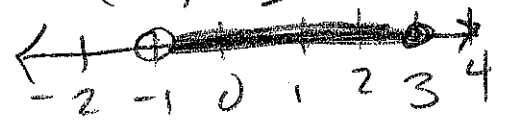
$$1 \leq -2x + 7 < 9$$

$$\frac{-6}{-2} \leq \frac{-2x}{-2} < \frac{2}{-2}$$

$$3 \geq x > -1$$

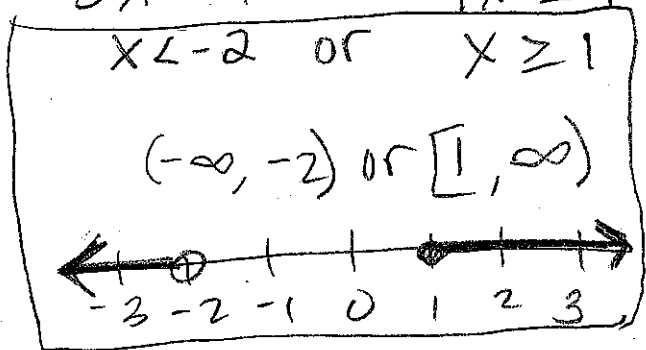
$$-1 < x \leq 3$$

$$(-1, 3]$$

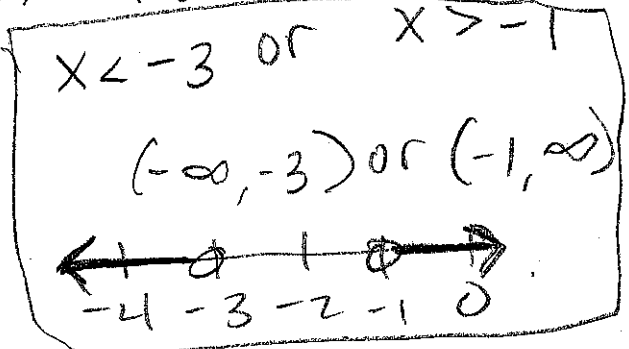


$$3x - 12 < -7 \text{ or } 4x + 9 \geq 13$$

$$3x < -4 \text{ or } 4x \geq 4$$



$$\frac{-5x}{-5} > \frac{15}{-5} \text{ or } \frac{x-5}{-5} > \frac{-6}{-5}$$

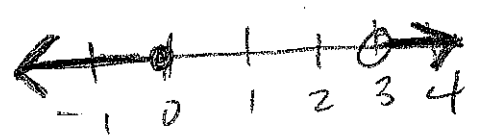


$$4 - 15x \geq 4 \text{ or } 12x > 36$$

$$-15x \geq 0$$

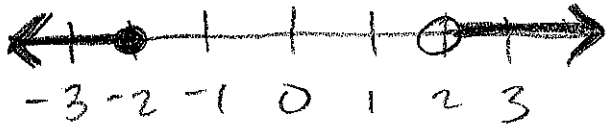
$$x \leq 0 \text{ or } x > 3$$

$$(-\infty, 0] \cup (3, \infty)$$

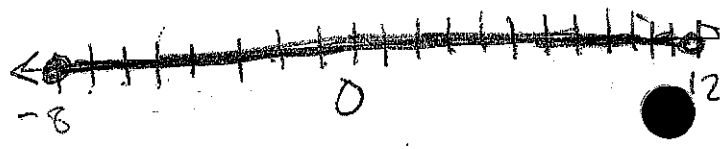


9) $-3x + 10 \geq 14$ or $9 - x < 7$
 $-3x \geq 4$ $-x < -2$
 $x \leq -\frac{4}{3}$ or $x > 2$

$(-\infty, -\frac{4}{3}]$ or $(2, \infty)$



13) $-8 \leq x \leq 12$

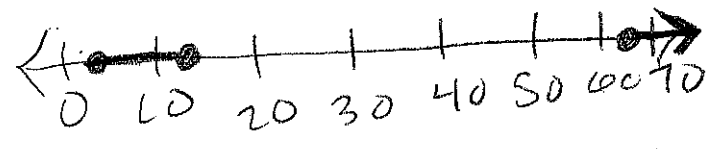


14) children

$2 \leq x \leq 13$

seniors

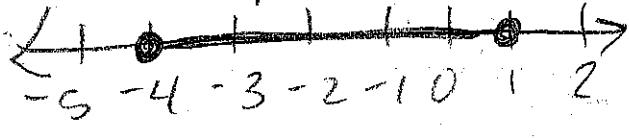
$x \geq 45$



10) $(\frac{x}{2}) \geq (-2)^2$ and $5 - 2x \geq 3$
 $\frac{x}{2} \geq 4$ and $-2x \geq -2$

$x \geq -4$ and $x \leq 1$
 $-4 \leq x \leq 1$

$[-4, 1]$

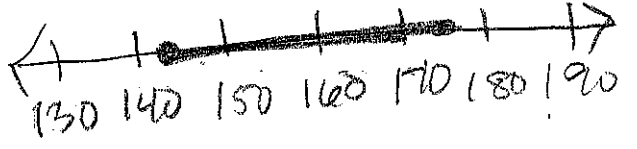


15) $.7(220 - 14)$

$.7(206) = 144.2$
(at least)

$.85(220 - 14)$

$.85(206) = 175.1$
(at most)



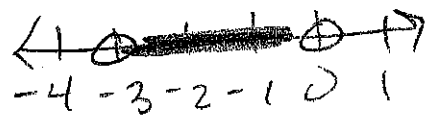
11) $8 < 8 - \frac{1}{3}x < 9$
 $-8 \quad -8 \quad -8$

$-3(0) < (-\frac{1}{3}x) < (1) - 3$

$0 > x > -3$

$-3 < x < 0$

$(-3, 0)$

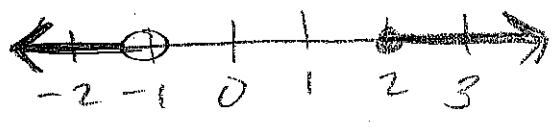


12) $-6x - 1 > 5$ or $11 + 4x \geq 19$

$-6x > 6$ $4x \geq 8$

$x < -1$ or $x \geq 2$

$(-\infty, -1) \cup [2, \infty)$



Inequality Word Problems

$$\begin{aligned} \textcircled{1} \quad 3 < n - 9 < 8 \\ +9 \quad \quad +9 \quad +9 \\ \hline 12 < n < 17 \\ \hline (12, 17) \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad 3 \leq n - 9 \leq 8 \\ +9 \quad \quad +9 \quad +9 \\ \hline 12 \leq n \leq 17 \\ \hline [12, 17] \end{aligned}$$

X = printer cost

$$\begin{aligned} \textcircled{3} \quad 175 \leq X + 30 \leq 240 \\ -30 \quad \quad -30 \quad -30 \\ \hline 145 \leq X \leq 230 \end{aligned}$$

HC will spend between \$145 and \$230.

h = hours

$$\begin{aligned} 42h - 75 > 240 \\ +75 \quad +75 \\ \hline 42h > 335 \\ \hline 42 \quad \quad 42 \\ \hline h > 7.976 \end{aligned}$$

⑤ X = final exam score

He needs to work at least 8 hours

$$4(77) \leq \frac{72 + 82 + 83 + 89 + X + X}{2} \leq 4(84)$$

$$\begin{aligned} 462 \leq 326 + 2X \leq 504 \\ -326 \quad -326 \quad \quad -326 \\ \hline 136 \leq \frac{2X}{2} \leq \frac{178}{2} \end{aligned}$$

$$68 \leq X \leq 89$$

She must score between a 68 and 89.

⑥ X = # of truck

$$\begin{aligned} 12000 \leq 11.08X + 84 \leq 15000 \\ -84 \quad \quad -84 \quad -84 \\ \hline 11916 \leq \frac{1.08X}{1.08} \leq \frac{14916}{1.08} \end{aligned}$$

$$11,033.33 \leq X \leq 13,811.11$$

He can buy a truck between \$11,033 and \$13,811.

⑦ X = students / bus

$$\begin{aligned} 18 + 5X \leq 250 \\ -18 \quad \quad -18 \\ \hline 5X \leq \frac{232}{5} \\ \hline X \leq 46.4 \end{aligned}$$

No. more than 46 students/bus.

⑧ $w = \text{width}$
 $l = \text{length}$

$$l = 20 + w$$

$$80 \leq 2(20+w) + 2w \leq 100$$

$$80 \leq 40 + 2w + 2w \leq 100$$

$$80 \leq 40 + 4w \leq 100$$

$$\begin{array}{ccc} -40 & -40 & -40 \end{array}$$

$$\frac{40}{4} \leq \frac{4w}{4} \leq \frac{60}{4}$$

$$10 \leq w \leq 15$$

The width is between 10 and 15 meters

⑩ $X = \# \text{ times court is rented}$

member < non member

$$135 + 2X < 11X$$

$$\begin{array}{ccc} -2X & -2X \end{array}$$

$$135 < 9X$$

$$\begin{array}{ccc} 9 & 9 \end{array}$$

$$15 < X$$

He must rent the court out more than 15 times.

$X = 4^{\text{th}} \text{ test score}$

$$\textcircled{9} \quad 4 \left(\frac{87 + 81 + 74 + X}{4} \right) \geq (85) 4$$

$$242 + X \geq 340$$

$$\begin{array}{ccc} -242 & -242 \end{array}$$

$$X \geq 98$$

He needs at least a 98%