9.3 6) $\cancel{2} + \left|1 - \frac{x}{2}\right| \leq 5$
$\quad\cancel{-2}\qquad\qquad\quad -2$

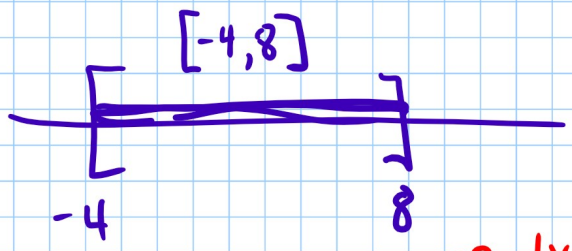
$$\left|1 - \frac{x}{2}\right| \leq 3$$

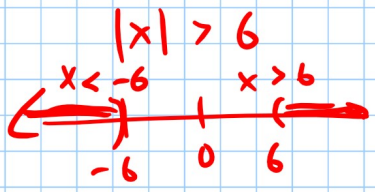
If $|X| < c$ then
$-c < X < c$

$$-3 \leq 1 - \frac{x}{2} \leq 3$$
$$-1 \qquad\quad -1$$

$$(-2)(-4) \leq \left(-\frac{x}{2}\right)(-2) \leq 2(-2)$$

$$8 \geq x \geq -4$$





If $|X| > c$ then $X < -c$ or $X > c$

11) $|r - s| \leq 5$

$|r - 33| \leq 5$

$-5 \leq r - 33 \leq 5$
$+33 \quad +33 \quad +33$

$28 \leq r \leq 38$ ← set-builder

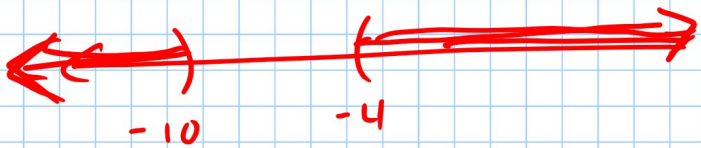
$[28, 38]$

12) $|-7 - x| > 3$

$-7 - x < -3$ or $-7 - x > 3$
$+7 \quad +7$ $+7 \quad +7$

$\frac{-x}{-1} < \frac{4}{-1}$ $\frac{-x}{-1} > \frac{10}{-1}$

$x > -4$ OR $x < -10$



$(-\infty, -10) \cup (-4, \infty)$

Extra Credit (on separate notebook paper)

Solve each and write answers in interval notation if it's an inequality.

1) $4-3x \geq 12-x$

2) $|4x-7| = 5$

3) $-10-3(2x+1) > 8x+1$

4) $|3x-2| \leq 4$

5) $5-2x \geq 9$ and $5x+3 > -17$

6) $\frac{x}{2}+3 \leq \frac{x}{3}+\frac{5}{2}$

7) $|5x+3| > 2$

8) $7-\left|\frac{x}{2}+2\right| \leq 4$

9) To receive a B in this course you must have an average of at least 80% and less than 90% on five exams. Your grades on the first four exams were 95%, 79%, 91%, and 86%. What range of grades on the fifth exam will result in a B for the course?

8) $7-\left|\frac{x}{2}+2\right| \leq 4$

$-7 \quad -7$

$-\left|\frac{x}{2}+2\right| \leq -3$

$\left|\frac{x}{2}+2\right| \geq 3$

$\frac{x}{2}+2 \leq -3$ or $\frac{x}{2}+2 \geq 3$

$\frac{x}{2} \leq -5$ $\qquad$ $\frac{x}{2} \geq 1$

$x \leq -10$ $\qquad$ $x \geq 2$

$(-\infty, -10] \cup [2, \infty)$

9) To have an 80% average on 5 tests the scores have to add up to 400.

To have a 90% average on 5 tests the scores

have to add up to 450.

$$\begin{array}{r} {\scriptstyle 2} \\ 95 \\ 79 \\ 91 \\ 86 \\ \hline 351 \end{array}$$

$[49, 99)$