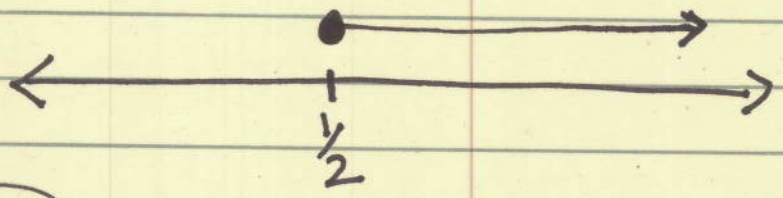
2.6 Solving Inequalities

(#20) $3x + 1 \geq 2 + x$

$-x \quad -1 \quad -x \quad -1$

$2x \geq 1$

$\boxed{x \geq \frac{1}{2}}$ Solution $\left[\frac{1}{2}, \infty\right)$



(#26) $-8 \leq -3x + 5 < 13$

$-8 \leq -3x + 5$ and $-3x + 5 < 13$

$-8 \leq -3x + 5 < 13$

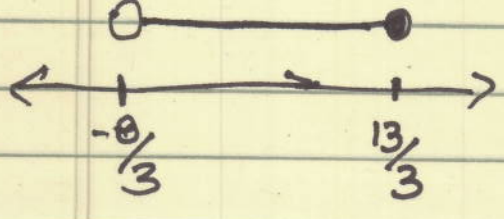
$-5 \quad -5 \quad -5$

$-13 \leq -3x < 8$

$\frac{-13}{-3} \geq \frac{-3x}{-3} > \frac{8}{-3}$

$\frac{13}{3} \geq x > \frac{-8}{3}$

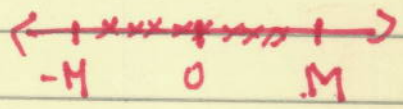
the Same $\boxed{\frac{-8}{3} < x \leq \frac{13}{3}}$



Ans: $\left(\frac{-8}{3}, \frac{13}{3}\right]$

$|x| = |-x|$ ✓

#46 $3|4-5x| \leq 9$



$3|5x-4| \leq 9$

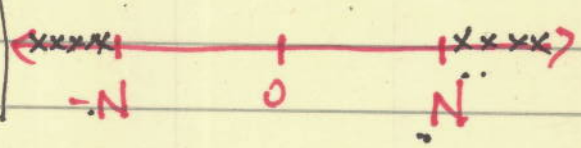
$|5x-4| \leq 3$

Key $|x| < M$.

$-M < x < M$

Key $|x| > N$

$x < -N$ or $x > N$



$-3 \leq 5x-4 \leq 3$

$+4 \quad +4 \quad +4$

$1 \leq 5x \leq 7$

$\frac{1}{5} \leq x \leq \frac{7}{5}$

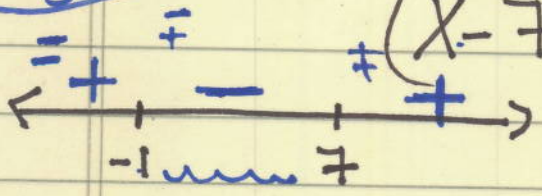
$\left[\frac{1}{5}, \frac{7}{5}\right]$ ✓

#66 $x^2 - 6x + 9 < 16$

$x^2 - 6x - 7 < 0$

Sign

$(x-7)(x+1) < 0$



Ans: $(-1, 7)$ ✓