Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

WS 3E.1 – Solving Simple Inequalities

#1-10, Solve each inequality and graph the solution set on a number line.

1. $5+\frac{1}{3}y>4$

< or > use O
≤ or ≥ use ●

$\frac{1}{3}y \cdot 3 > -1 \cdot 3$

$y > -3$

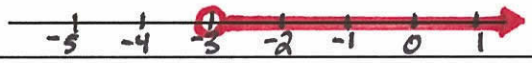
2. $5y+7-7y<13$

$-2y+7<13$

$\frac{-2y}{-2} < \frac{6}{-2}$

I just divided by a negative. FLIP!

$y > -3$



3. $1+a \le 3-2a$

+2a +2a

$1+3a \le 3$

$3a \le 2$

$a \le \frac{2}{3}$

4. $5z-2(z-15) \le 10$

$5z-2z+30 \le 10$

$3z+30 \le 10$

$3z \le -20$

$z \le -\frac{20}{3}$

$-\frac{20}{3} = -6\frac{2}{3}$

5. $4(3m-1)>2(m+3)$

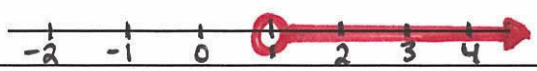
$12m-4>2m+6$

$-2m \quad -2m$

$10m-4>6$

$10m>10$

$m>1$



6. $2(24-w)-1 \le 17-2w$

$48-2w-1 \le 17-2w$

$47-2w \le 17-2w$

+2w +2w

$47 \le 17$ ← False Statement.

This inequality has no solution.

No need to graph if there is no solution.

7. $\frac{1}{2} - \frac{1}{3}x < \frac{3}{8} + \frac{1}{6}x$ (·24)

$12 - 8x < 9 + 4x$

$-4x \quad -4x$

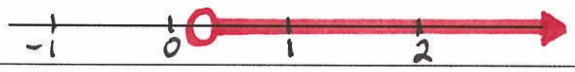
$12 - 12x < 9$

$\frac{-12x}{-12} < \frac{-3}{-12}$

$x > \frac{-3}{-12}$

I just divided by a negative. FLIP!

$\boxed{x > \frac{1}{4}}$



8. $4 + 2(3 - 2n) \geq 4(2n - 5) - 6n$

$4 + 6 - 4n \geq 8n - 20 - 6n$

$10 - 4n \geq 2n - 20$

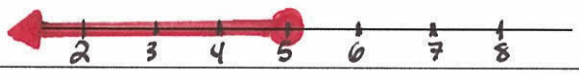
$-2n \quad -2n$

$10 - 6n \geq -20$

$\frac{-6n}{-6} \geq \frac{-30}{-6}$

$\boxed{n \leq 5}$

I just divided by a negative. FLIP!



9. $6 - [2 - 5(7r - 9)] > r - (-r + 8)$

$6 - [2 - 35r + 45] > r + r - 8$

$6 - [47 - 35r] > 2r - 8$

$6 - 47 + 35r > 2r - 8$

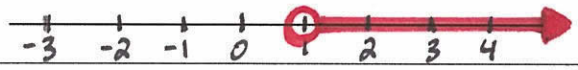
$-41 + 35r > 2r - 8$

$-2r \quad -2r$

$-41 + 33r > -8$

$33r > 33$

$\boxed{r > 1}$



10. $8q - (3 - q) \leq -\{-[-(3 - 9q)]\}$

$8q - 3 + q \leq -\{-[-3 + 9q]\}$

$9q - 3 \leq -\{3 - 9q\}$

$9q - 3 \leq -3 + 9q$

$-9q \quad -9q$

$-3 \leq -3$ ← True statement

All real numbers are solutions to this inequality.

There is really no need to graph if all real numbers are solutions.