and Graphing Inequalities Notes

Name:_____

Inequality Symbols

<	>	≤	≥

Write in symbols.

The most it will cost is $30. $X \leq 30$

You can have at least 3 of my Skittles. $X \geq 3$

Your quiz score is 92%. $X = 92$

Your age is less than 19 years. $X < 19$

Equations v. Inequalities?

$-2 = n - 4$

$n = 2$

$-2 > n - 4$

$2 > n$

$n < 2$

Solve and describe in words.

$2y - 5 < 7$

$y < 6$

Solve.

$\frac{a}{3} \leq 12$

$a \leq 36$

$-5x - 3 > 12$

$\frac{-5x}{-5} > \frac{15}{-5}$

$x < -3$

***Special Rules to Remember:**

X or ÷ by a negative? $\frac{-2x}{-2} > \frac{8}{-2}$

* Flip the sign $x < -4$

$-4.2m > 6.3$

$\frac{-4.2m}{-4.2} < \frac{6.3}{-4.2}$

$m < -1.5$

$x + 5 \geq 3$

$x \geq -2$

Graphing Inequalities

There are three pieces to graphing:

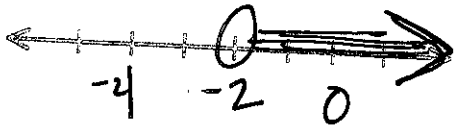
1. Number Line ←+++++→
2. Dot

Sign	Dot
< and >	open ○
≤ and ≥	closed ●

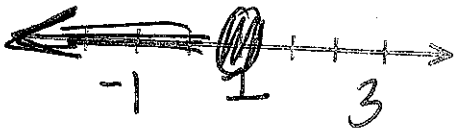
3. Shading ——————●

Graph:

$x > -2$

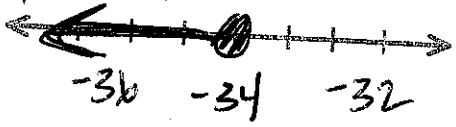


$x \leq 1$



$-x - 11 \geq 23$

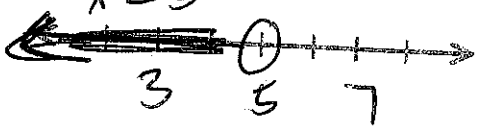
$\frac{-x}{-1} \geq \frac{34}{-1}$ $x \leq -34$



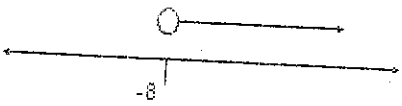
$-6 + 5x < 19$

$-6 + 5x < 19$

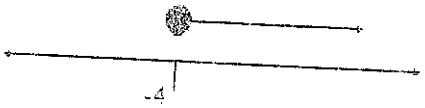
$x < 5$



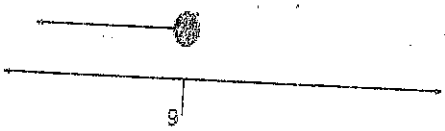
Do you think you can write the inequality from the graph?



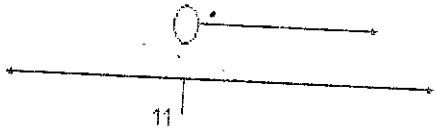
$x > -8$



$x \geq -4$



$x \leq 9$



$x > 11$

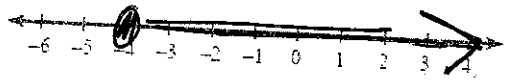
Practice:

1) $-10(n + 8) \leq -40$

$-10n - 80 \leq -40$

$-10n \geq 40$

$n \geq -4$



2) $7 + \frac{r}{10} \geq 6$

$10 \cdot \frac{r}{10} \geq -1 \cdot 10$

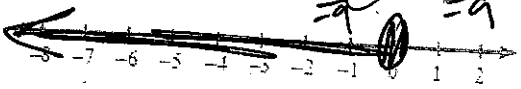
$r \geq -10$

3) $-3 \leq -9b - 3$

$0 \leq -9b$

$\frac{0}{-9} \leq \frac{-9b}{-9}$

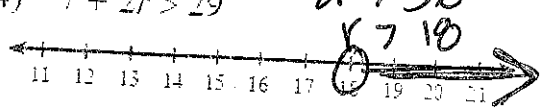
$b \leq 0$



4) $-7 + 2r > 29$

$2r > 36$

$r > 18$

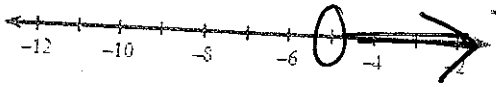


5) $7(-3x + 7) < 154$

$-21x + 49 < 154$

$-21x < 105$

$x > -5$



6) $6(4x + 1) \leq 150$

$24x + 6 \leq 150$

$x \leq 6$