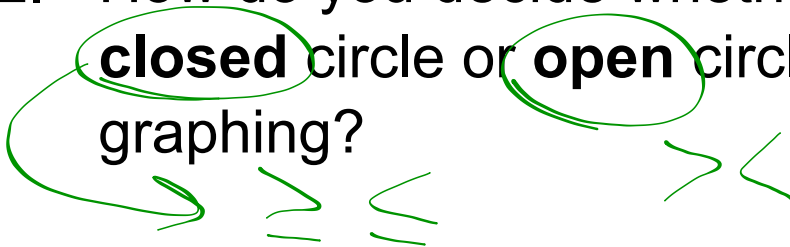# WARM-UP

1. What does this symbol mean? **≥**

   greater than or = to

2. How do you decide whether to use a (**closed**) circle or (**open**) circle when graphing?

   $> \geq \leq$ $> <$

3. When graphing an inequality, how do you choose the **direction** of your arrow?

   * reasoning about the variable
   * If variable on left, then arrow points the same way as symbol

4. In a multi-step inequality, what property will you likely need to use if you see **parentheses**?

   distributive

5. In a multi-step inequality, which operation would you undo first, (**subtraction**) or **division**? (Ex: 3x - 2 > 8)

   order of ops. in reverse

⑨ $5 \cdot 4 < \frac{c}{5} \cdot 5$

$20 < c$

$\boxed{c > 20}$

⑫ $-3 \leq \frac{2}{3} r + 9$

$ -9 \qquad\qquad -9$

$\dfrac{-12 \leq \frac{2}{3} r}{\frac{2}{3} \qquad \frac{2}{3}}$

$-12 \div (2 \div 3)$

$= -18$

⑭ $-2(4b + 1) < -3b + 8$

$-8b - 2 < -3b + 8$

$ +2 \qquad\qquad +2$

$-8b < -3b + 10$

$+3b \qquad +3b$

$-8b - 2 < -3b + 8$

$+8b \qquad\qquad +8b$

$-2 < 5b + 8$

$-8 \qquad\quad -8$

$\dfrac{-10 < 5b}{5 \qquad 5}$

$\boxed{-2 < b} \leftrightarrow \boxed{b > -2}$

$-8b - 2 < -3b + 8$

$+3b \qquad\qquad +3b$

$-5b - 2 < 8$

$ +2 \qquad +2$

$\dfrac{-5b < 10}{-5 \qquad -5}$

$\boxed{b > -2}$

(12) $-3 \leq \dfrac{2}{3} r + 9$

$-9 \qquad\qquad -9$

$\dfrac{3}{2} \cdot -12 \leq \dfrac{2}{3} r \cdot \dfrac{3}{2}$

$\boxed{-18 \leq r}$

$\boxed{r \geq -18}$

(14) $-2(4b + 1) < -3b + 8$

$-8b - 2 < -3b + 8$

$+3b \qquad\qquad +3b$

$-5b - 2 < 8$

$+2 \qquad +2$

$\dfrac{-5b}{-5} < \dfrac{10}{-5}$

$\boxed{b > -2}$

*more variable terms to left

$-8b - 2 < -3b + 8$

$+8b \qquad\qquad +8b$

$-2 < 5b + 8$

⑬ $5x + 11 \leq 2x - 10$

$-2x \qquad\qquad -2x$

$3x + 11 \leq -10$

$-11 \qquad -11$

$3x \leq -21$

$\dfrac{3x}{3} \leq \dfrac{-21}{3} \rightarrow \boxed{x \leq -7}$

1) Move the smaller variable term

2) Move all vars. to left

9, 14, 13, 12

(9) $4 < \dfrac{c}{5} \cdot 5$

$20 < C$

$C > 20$

(13) $5x + 11 \leq 2x - 10$

$ -11 -11$

$5x \leq 2x - 21$

$-2x -2x$

$3x \leq -21$

$\dfrac{3x}{3} \leq \dfrac{-21}{3}$

$X \leq -7$

$5x + 11 \leq 2x - 10$

$-2x -2x$

$3x + 11 \leq -10$

$ -11 -11$

$3x \leq -21$

$\cdots$

(15) $-2(4b + 1) < 70$

$-8b - 2 < 70$

$ +2 \phantom{<} +2$

$\dfrac{-8b}{-8} < \dfrac{72}{-8}$

$b > -9$

14, 15, 13, 7, 11

7) $m + 2 \geq 6$
$\quad -2 \quad -2$
$$\boxed{m \geq 4}$$

11) $\frac{w}{6} > -3$
$6 \cdot \qquad \cdot 6$
$$\boxed{w > -18}$$

13) $5x + 11 \leq 2x - 10$
$\quad -2x \qquad -2x$
$3x + 11 \leq -10$
$\qquad -11 \qquad -11$
$\dfrac{3x}{3} \leq \dfrac{-21}{3}$
$x \leq -7$

14) $\dfrac{d}{4} + 1 \geq -3$
$\qquad -1 \quad -1$
$4 \cdot \dfrac{d}{4} \geq -4 \cdot 4$
$$\boxed{d \geq -16}$$

15) $-2(4b + 1) < 70$
$-8b - 2 < 70$
$\qquad +2 \quad +2$
$\dfrac{-8b}{-8} < \dfrac{72}{-8}$
$$\boxed{b > -9}$$

(12) $-3 \leq \frac{2}{3}r + 9$

$ -9 \phantom{\frac{2}{3}r} -9$

$\frac{3}{2} \cdot -12 \leq \frac{2}{3}r \cdot \frac{3}{2}$

$\boxed{-18 \leq r}$

$\boxed{r \geq -18}$

(15) $-5(g+4) > 3(g-4)$

$\star \quad -5g - 20 > 3g - 12$

$+5g +5g$

$-20 > 8g - 12$

$+12 +12$

$-8 > 8g$

$\frac{-8}{8} \frac{8g}{8}$

$\boxed{-1 > g} \quad \boxed{g < -1}$

$-5g - 20 > 3g - 12$

$ +20 +20$

$-5g > 3g + 8$

$-3g -3g$

$\frac{-8g}{-8} > \frac{8}{-8}$

$\boxed{g < -1}$

(13) $2x + 11 \leq 5x - 10$

$-2x -2x$

$11 \leq 3x - 10$

$+10 +10$

$21 \leq 3x$

$\frac{21}{3} \frac{3x}{3}$

$\boxed{7 \leq x}$

Quiz Instructions

1. Write your **first and last name, period,** and **date** on your quiz.
2. **ANSWER EVERY QUESTION.** Leave nothing blank.
3. When finished, turn in **face down** to the **INBOX.**
4. Read, sleep, or work on something **silently**. NO TECHNOLOGY.