Algebra: Inequalities Know-It-All

| Inequality Symbol | How You Say It | How You Graph It |
| :---: | :---: | :---: |
| $x>4$ | $x$ is greater than 4 |  |
| $x<4$ | $x$ is less than 4 |  |
| $x \geq 4$ | $x$ is greater than or equal to 4 | $\begin{array}{lllllllllllllllll}-7 & -6 & -5 & -4 & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7\end{array}$ |
| $x \leq 4$ | $x$ is less than or equal to 4 | $\begin{array}{lllllllllllllllll}-7 & -6 & -5 & -4 & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7\end{array}$ |

${ }^{* * *}$ Notice the open and closed circles in the graphs***

## PRO TIPS:

$\checkmark$ Solve the inequality just like you would solve an equation...for example:
$x+3<5 \quad$ Solve as if it said: $x+3=5$
$\checkmark$ If you have to divide by a negative when you're solving, then you have to change the inequality sign.
$-6 x>12 \quad$ Divide by -6 on both sides: $\quad \frac{-6 x}{-6}>\frac{12}{-6} \quad$ Next, change the $>$ sign to $<. \quad$ Answer: $x<-2$
$\checkmark$ Be sure to write your answer so that the variable, usually " $x$ " is on the left side of the problem. If you end up with $3>x$, then you need to turn it around and the inequality symbol will change also.

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3>x \quad \text { becomes } \quad x<3
$$

