**6.4 – Solving Linear Inequalities**

Recall that an equation has only \_\_\_\_\_\_\_\_\_\_\_ solution, but an inequality has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ solutions.

|  |  |
| --- | --- |
| Equation | Inequality |
| $$x+3=5$$Solution(s): | $$x+3<5$$Solution(s): |

To solve an inequality, we use the same strategy as for solving an equation with one exception:

If you \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ both sides of the inequality by a NEGATIVE NUMBER, the inequality sign must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Let's see why this is the case… Is this inequality true or false? $2<6$

* Multiply both sides of the inequality by 2. Is the resulting inequality still true?
* Multiply both sides of the inequality by -2. Is the resulting inequality still true?

Ex. 1: Solve each inequality

1. $k+8>-13$ (b) $6.2\leq x-4.5$

(c) $-25\leq 5y+5$ (d) $-6y\geq 24$

(e) $4x-19<24+3x$ (f) $-3\left(p+2\right)\geq 12-p$

Ex. 2: A super-slide charges $1.25 to rent a mat and $0.75 per ride. If Jason has $10.25, how many rides can he go on? Write and solve an appropriate inequality.