**Inequalities Involving Addition and Subtraction**

Solve each inequality:

1. -12 < y - 6 2. 2/7 > b + 5/7

 +6 +6 🡨 USED INVERSE OPERATION 🡪 -5/7 -5/7

 -6 < y + 0 🡪 -6 < y -3/7 > b + 0 🡪 -3/7 > b

Possible Ans: -5, -4… make’s “y” true Possible Ans: -4/7, -5/7…make’s “b” true

A small airplane can hold 44 passengers. Fifteen passengers board the plane. Write and solve an inequality that represents the additional number of passengers that can board the plane.

Step(1): Write the inequality

Let “x” represent the additional number of passengers that can board the plane

15 + x ≤ 44 (Use ≤ because you can only put 44 or less people on the plane)

Step(2): Solve the inequality

 15 + x ≤ 44

 -15 -15 🡨 Use the inverse (Remember to isolate “x”)

 0 + x ≤ 29 🡨 x ≤ 29 (possible answers: 29, 28, 27…0)

*Important Tips*: (**REMEMBER YOU WANT INEQUALITY ANSWERS TO BE TRUE**)

1. Do not treat inequalities as equal signs (They are different)
2. Equal signs have **only one** correct answer
3. Inequalities have **one or more** correct answers determined by the solution set (ie…x ≤ 16 🡪 possible answers: 0, 1, 6, 8, 10, 12, 15, 16: because all of these values make the inequality true, less than 16)
4. Use the number line when checking for inequality values (always **substitute** a value into the variable **to determine which sets of data make it true**
5. When the values are positive: greater than or less than values are easy to determine (x < 4 🡪 possible answers: 0, 1, 2, 3 **makes it true**)
6. When the values are negative: greater than or less than values are harder to determine (x < -4 🡪 possible answers: -5, -6, -7… **make it true**)