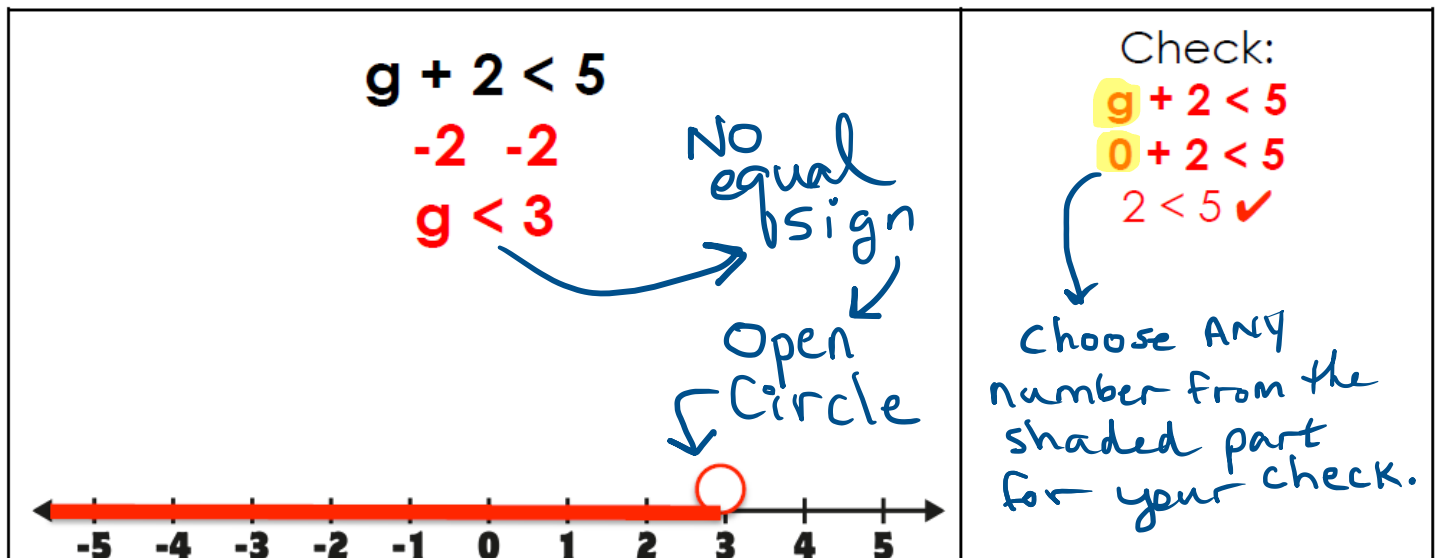Name:_____   Date:_____

Solving Inequalities Using Addition & Subtraction

1. To solve and graph an inequality, use inverse operations to isolate the variable, just as you would solve an equation.
2. The inverse operation of addition is subtraction.
3. The inverse operation of subtraction is addition.
4. When graphing an inequality where the number is a solution, use a closed circle.
5. When graphing an inequality where the number is not a solution, use an open circle.
6. The Addition Property of Inequality states that when you add the same number to each side of an inequality the inequality remains true.
7. The Subtraction Property of Inequality states that when you subtract the same number to each side of an inequality the inequality remains true.
8. To check your inequality solution set, choose any number that is shaded in.
9. Then evaluate the inequality with that number to make sure the inequality is true.

10. Solve and graph the inequality. Don't forget to check your solution.

$$g + 2 < 5$$
$$\underline{-2 \quad -2}$$
$$g < 3$$

No equal sign

Open Circle

Check:
$$g + 2 < 5$$
$$0 + 2 < 5$$
$$2 < 5 ✔$$

Choose ANY number from the shaded part for your check.

Name:_____   Date:_____   **Answer Key**

Practice: Solving Inequalities Using Addition & Subtraction

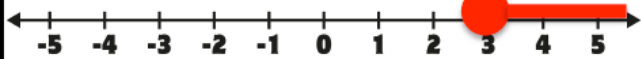| #1 Solve and graph the inequality:	Check:
$x - 1 \leq 3$ $+1 \ +1$ $x \leq 4$ *has equal sign* $\downarrow$ closed circle 	$x - 1 \leq 3$ $4 - 1 \leq 3$ $3 \leq 3$ ✔
#2 Solve and graph the inequality:	Check:
$x + 3 \geq 6$ $-3 \ -3$ $x \geq 3$ closed circle 	$x + 3 \geq 6$ $5 + 3 \geq 6$ $8 \geq 6$ ✔ *Choose any number from the shaded section for your check*

#3 Solve and graph the inequality:	Check:
$6 + x < 8$ $-6 \quad -6$ $x < 2$ open circle 	$6 + x < 8$ $6 + 1 < 8$ $7 < 8$

#4 Solve and graph the inequality:	Check:
$1 < x - 3$ $+3 \ +3$ $4 < x$ open circle 	$1 < x - 3$ $1 < 5 - 3$ $1 < 2$ ✔
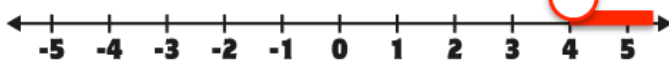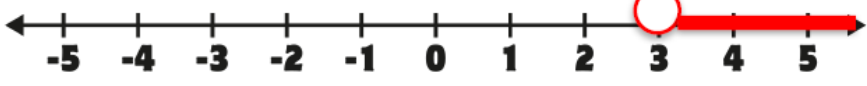
Solving Inequalities Using Multiplication & Division

1. To solve and graph an inequality, use inverse operations to isolate the variable, just as you would solve an equation.

2. The inverse operation of multiplication is division.
3. The inverse operation of division is multiplication.
4. When graphing an inequality where the number is a solution, use a closed circle.
5. When graphing an inequality where the number is not a solution, use an open circle.
6. The Multiplication Property of Inequality states that when you multiply each side of an inequality by the same POSITIVE number, the inequality remains true.
7. The Division Property of Inequality states that when you divide each side of an inequality by the same POSITIVE number, the inequality remains true.
8. To check your inequality solution set, choose any number that is shaded in.
9. Then evaluate the inequality with that number to make sure the inequality is true.

10. Solve and graph each inequality. Don't forget to check your

$2g \leq 10$ $\div 2 \quad \div 2$ $g \leq 5$ 	Check: $2g \leq 10$ $2(4) \leq 10$ $8 \leq 10 ✔$
$h \div 3 > 1$ $\times 3 \quad \times 3$ $h > 3$ 	Check: $h \div 3 > 1$ $6 \div 3 > 1$ $2 > 1 ✔$

Choose any number from the shaded Section for your check

Name:_____   Date:_____

Practice: Solving Inequalities Using Multiplication & Division
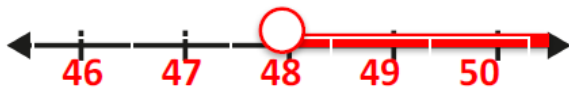
#1 Solve and graph the inequality:	Check:
$8g \geq 72$ $\div 8 \quad \div 8$ $g \geq 9$ 7 8 **9** 10 11	$8g \geq 72$ $8 \times 9 \geq 72$ $72 \geq 72$ ✔
#2 Solve and graph the inequality:	Check:
$w \div 4 > 12$ $\times 4 \quad \times 4$ $w > 48$ 46 47 **48** 49 50	$w \div 4 > 12$ $52 \div 4 > 12$ $13 > 12$ ✔
#3 Solve and graph the inequality:	Check:
$12 > 4x$ $\div 4 \quad \div 4$ $3 > x$ 1 2 **3** 4 5	$12 > 4x$ $12 > 4 \times 2$ $12 > 8$ ✔
#4 Solve and graph the inequality:	Check:
$d \div 6 \leq 66$ $\times 6 \quad \times 6$ $d \leq 396$ 394 395 **396** 397 398	$d \div 6 \leq 66$ $396 \div 6 \leq 66$ $66 \leq 66$ ✔