U5 L2-1 **Properties of Operations with inequalities** 7.EE.4b

Name _____ Date _____

Use the given inequality to complete following problems: 8 > -12. **Write** a new inequality and **state** what happens to the inequality sign.

Inequality	**Math Operation**	**Work**	**Inequality statement after math operation performed**
8 > -12	Subtract both sides by – 3.	8 > –12 - (- 3) -(- 3) 11 > – 9	11 **>** – 9 Inequality sign stays the same.
8 > -12	Add -3 to both sides		
8 > -12	Multiply both sides by 3		
8 > -12	Divide both sides by 2		
8 > -12	Multiply both sides by –3		
8 > -12	Divide both sides by – 2		

U5 L2-1 **Properties of Operations with inequalities** 7.EE.4b

8 > -12	Divide Both sides by 4.		
8 > -12	Divide Both sides by – 4 .		
8 > -12	Multiply both sides by $\frac{1}{4}$		
8 > -12	Multiply both sides by $-\frac{1}{4}$		
8 > -12	Add both sides by 1 ½		
8 > -12	Subtract both sides by 1 ½		

Reflection: Review your work and **write a rule about the inequality sign** when you multiply or divide the inequality by a negative number.

U5 L2-1 **Properties of Operations with inequalities** 7.EE.4b

ANSWER KEY

Inequality	Math Operation	Work	Inequality statement after math operation performed
8 > -12	Subtract both sides by – 3.	8 > –12 - (- 3) -(- 3) 11 – 9	11 > – 9 Inequality sign stays the same.
8 > -12	Add -3 to both sides	8 > -12 + (- 3) + (- 3) 5 -15	5 > -15 Inequality sign stays the same.
8 > -12	Multiply both sides by 3	8 > -12 •3 •3 24 -36	24 > -36 Inequality sign stays the same.
8 > -12	Divide both sides by 2	8 > -12 ÷2 ÷2 4 -6	4 > -6 Inequality sign stays the same.
8 > -12	Multiply both sides by –3	8 > -12 •(-3) •(-3) -24 36	-24 < 36 Inequality sign changes.
8 > -12	Divide both sides by – 2	8 > -12 ÷(-2) ÷(-2) -4 6	-4 < 6 Inequality sign changes.
8 > -12	Divide Both sides by 4.	8 > -12 ÷4 ÷4 2 -3	2 > -3 Inequality sign stays the same.

U5 L2-1 **Properties of Operations with inequalities** 7.EE.4b

8 > -12	Divide Both sides by – 4 .	$8 > -12$ $\div(-4) \quad \div(-4)$ $-2 \quad 3$	-2 < 3 Inequality sign changes.
8 > -12	Multiply both sides by $\frac{1}{4}$	$8 > -12$ $\bullet \frac{1}{4} \quad \bullet \frac{1}{4}$ $2 \quad -3$	2 > -3 Inequality sign stays the same.
8 > -12	Multiply both sides by $-\frac{1}{4}$	$8 > -12$ $\bullet(-\frac{1}{4}) \quad \bullet(-\frac{1}{4})$ $-2 \quad 3$	-2 < 3 Inequality sign changes.
8 > -12	Add both sides by 1 ½	$8 > -12$ $+ 1\frac{1}{2} \quad + 1\frac{1}{2}$ $9\frac{1}{2} \quad -11\frac{1}{2}$	9 ½ > -11 ½ Inequality sign stays the same.
8 > -12	Subtract both sides by 1 ½	$8 > -12$ $-1\frac{1}{2} \quad -1\frac{1}{2}$ $7\frac{1}{2} \quad -13\frac{1}{2}$	7 ½ > -13 ½ Inequality sign stays the same.

Reflection: Review your work and **write a rule about the inequality sign** when you multiply or divide the inequality by a negative number.

When multiplying or dividing by a negative number, the inequality sign changes direction (creating a different inequality).