

Lesson 14: Solving Inequalities

Warm-up: Fill in the blanks with the appropriate inequality ( > or < ).

1.  $7 \underline{\hspace{1cm}} 5$

2.  $16 \underline{\hspace{1cm}} 21$

3.  $-9 \underline{\hspace{1cm}} -4$

4.  $-13 \underline{\hspace{1cm}} -16$

5.  $13 \underline{\hspace{1cm}} 16$

| Symbol | Meaning |
|--------|---------|
| $>$    |         |
| $<$    |         |
| $\geq$ |         |
| $\leq$ |         |

1.  $n > 4$

2.  $r < 5$

3.  $b \leq -4$



4.  $t > 2$

5.  $s < -3$

6.  $e \geq 8$



7.  $3 > d$

8.  $-5 < c$

9.  $2 > x$



10.  $t \leq 2$

11.  $-3 < s$



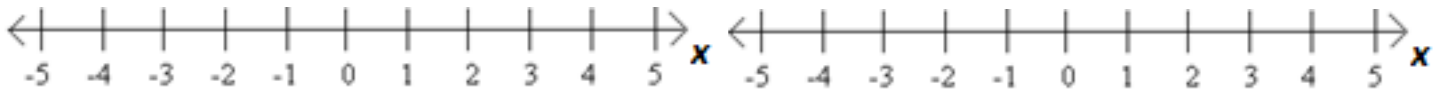
## Lesson 14 Solving Inequalities Day 1

Solving linear inequalities is the same as solving linear equations... **\*\*\* EXCEPT**...when you **multiply** or **divide** an inequality by a **negative value**, it *changes the direction of the inequality*.

Find the solution set to each inequality. Express the solution in set notation and graphically on the number line.

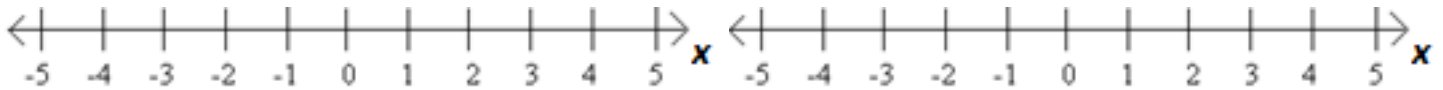
1.)  $-2x < -8$

2.)  $-3y > 27$



3.)  $2x + 4 > 6$

4.)  $-5q + 10 > 20$



5.)  $x + 4 \leq 7$

6.)  $\frac{m}{3} + 8 \neq 9$



7.)  $-20 < -5x$



8.)  $15 \geq 3x + 3$



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Lesson 14 HW Solving inequalities Day 1

Find the solution set to each inequality. Express the solution in set notation and graphically on the number line.

1.  $n + 8 > 4$

2.  $x - 1 < 5$

3.  $2w + 2 > 6$



4.  $5t - 18 > 2$

5.  $-3x + 3 < -3$

6.  $e + 7 \geq 8$



7.  $-6b - 10 \leq -4$

8.  $2q \geq 6$

9.  $-n + 1 \leq 3$



10.  $3 > d + 2$

11.  $-5 < c - 6$

12.  $2 > x - 8$



13.  $7t - 47 \leq 2$

14.  $s - 1 < -3$

15.  $8 \geq -2e + 2$



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Lesson 14 Solving multi-step inequalities Day 2

Warm Up:

Find the solution set to each inequality. Express the solution in set notation and graphically on the number line.

1.  $5 > d + 3$

2.  $-7 < c - 6$

3.  $4 > -x - 2$



4.  $-6t - 6 \leq 12$

5.  $s + 2 < 3$

6.  $2e - 4 \geq 2$



Lesson 14: Solving multi step inequalities Day 2

Discussion: When you multiply or divide by a negative number, the \_\_\_\_\_

of the \_\_\_\_\_ changes.

How do you graph an inequality when the variable is on the right?

a.)  $2 > d$

b.)  $4 < t$

Find the solution set to each inequality. Express the solution in set notation and graphically on the number line.

1.)  $8y + 4 < 7y - 2$

2.)  $6(x - 5) \geq 30$



3.)  $4(x - 3) > 2(x - 2)$

4.)  $-2(f - 2) < -16$



7.)  $-\frac{x}{12} \leq \frac{1}{4}$

8.)  $6 - a \geq 15$



9.)  $6 - 3(2x + 4) > 0$



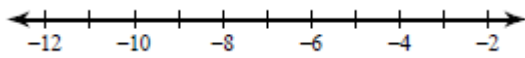
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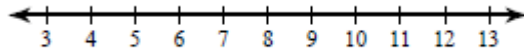
Lesson 14 HW Solving multi-step inequalities Day 2

Find the solution set to each inequality and graph its solution.

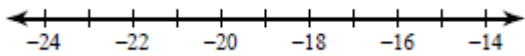
1.  $-12 > x - 7$



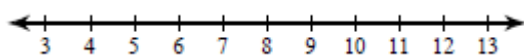
2.  $\frac{n}{3} > 3$



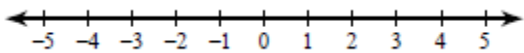
3.  $\frac{k}{4} < -4$



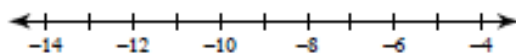
4.  $-9x \geq -90$



5.  $0 \geq 7n$

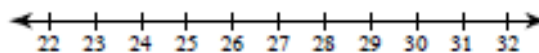
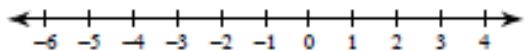


6.  $-4(-4 + x) > 56$



$$7. -3(p - 7) \geq 21$$

$$8. \frac{-9+a}{15} > 1$$



$$9. 28 - 7x \leq -4(-7x - 7)$$

$$10. 3(1 - 2x) > 3 - 6x$$

