

Solving Inequalities

Agenda

Warm-Up

Notes

HW #1-13,

Wheel Spin on
Monday

Reminders

Test next Thursday!

Test I Corrections
due Wednesday

Essential Question

What is the one
special rule when
solving inequalities?

Warm-Up in notebook

If you have not
already: turn in your
signed progress
report and HW 1.4.

Then set up p.20 in
your notebook to
look like the picture.

Solving Single-Step Inequalities
EQ: what is the one special rule for solving inequalities?

$2 < 4$	$2 < 4$	$2 < 4$	$2 < 4$	$2 < 4$	$2 < 4$
Is this a true statement? yes	Subtract 5 from both sides. $2 < 4$ $-5 \phantom{<} -5$ $-3 < -1$	Multiply both sides by 3. $2 < 4$ $6 < 12$	Multiply both sides by negative 3. $2 < 4$ $-6 < -12$ $-6 > -12$	Divide both sides by 2. $2 < 4$ $1 < 2$	Divide both sides by negative 2. $2 < 4$ $-1 < -2$ $-1 > -2$
$2 + 3 < 4 + 3$ $5 < 7$ Is this still a true statement? yes	$-3 < -1$ Is this still a true statement? yes	$6 < 12$ Is this still a true statement? yes	$-6 > -12$ Is this still a true statement? NO	$1 < 2$ Is this still a true statement? yes	$-1 > -2$ Is this still a true statement? NO

Write in your own words, the special rule for when you solve inequalities.
when multiplying or dividing by a negative, flip the inequality sign!

$+$
One-Step
Addition
Inequalities

$-$
One-Step
Subtraction
Inequalities

\times
One-Step
Multipli-
cation
Inequalities

\div
One-Step
Division
Inequalities

Solving Inequalities p.20

Essential Question

What is the one special rule when solving inequalities?

< less than

> greater than

$2 < 4$ Is this a true statement? <i>yes</i> Now add 3 to both sides. $2 + 3 < 4 + 3$ $5 < 7$ Is this still a true statement? <i>yes</i>	$2 < 4$ $-5 -5$ Subtract 5 from both sides. $-3 < -1$ Is this still a true statement? <i>yes</i>	$3 \cdot 2 < 4 \cdot 3$ Multiply both sides by 3. $6 < 12$ Is this still a true statement? <i>yes</i>	$(-3) 2 < 4(-3)$ Multiply both sides by negative 3. $-6 < -12$ $-6 > -12$ Is this still a true statement? <i>NO</i>	$\frac{2}{2} < \frac{4}{2}$ Divide both sides by 2. $1 < 2$ Is this still a true statement? <i>yes</i>	$\frac{2}{-2} < \frac{4}{-2}$ Divide both sides by negative 2. $-1 < -2$ $-1 > -2$ Is this still a true statement? <i>NO</i>
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Solving Inequalities p.20

Essential Question

What is the one special rule when solving inequalities?

Using what we saw in the boxes, write in your own words the special rule when solving inequalities.

Whenever you divide or multiply by a negative number, flip the inequality sign.

Side Note

$$\begin{array}{r} -2x = 36 \\ \hline -2 \quad -2 \end{array}$$

$$+x = -18$$

==

> <

Solving Inequalities p.20

Essential Question

What is the one special rule when solving inequalities?

● → line under
Example 1:

$$w + 2 \geq 4$$

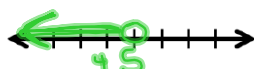
$$\begin{array}{r} -2 \\ \hline w \geq 2 \end{array}$$



○ → no line
Example 2:

$$3 + x < 8$$

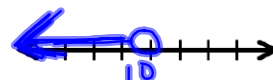
$$\begin{array}{r} -3 \\ \hline x < 5 \end{array}$$



Example 3:

$$h - 3 < 7$$

$$\begin{array}{r} +3 \\ \hline h < 10 \end{array}$$



Example 4:

$$y - 5 \leq 9$$

$$\begin{array}{r} +5 \\ \hline y \leq 14 \end{array}$$



Example 5:

$$4n \leq -12$$

$$\begin{array}{r} \div 4 \\ \hline n \leq -3 \end{array}$$



Example 6: **FLIP**

$$-6a > -24$$

$$\begin{array}{r} \div -6 \\ \hline a < 4 \end{array}$$



Example 7:

$$\frac{m}{9} < 10$$

$$\begin{array}{r} \times 9 \\ \hline m < 90 \end{array}$$



Example 8: **FLIP**

$$\frac{m}{-5} < 6$$

$$\begin{array}{r} \times -5 \\ \hline m > -30 \end{array}$$



Variable on left → use arrow

Algebra I - Unit 1: Topic 4 - Solving Inequalities

Due Monday 9/22 (Wheel Spin)

Practice - Solving Single Step Inequalities

pp 168-170, 174-176, 180-182

Name _____ Date _____ Per _____

Solve and graph the following inequalities. Remember to check your work.

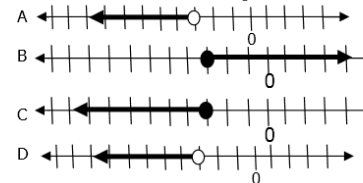
1. $-8 \geq 3 + n$

$-3 \geq n$

$n \leq -3$

2. $-5x > -25$

3. $7 < -x$

4. Which graph shows the solution of $-\frac{2}{3}n \leq 2$?

Solve each inequality. Then check your solution.

5. $\frac{2}{3}x < -22$

6. $51 \leq x - (-49)$

7. $-3x \leq -15$

8. $-\frac{3m}{4} < \frac{2}{3}$

Define a variable, write an inequality, and solve each problem.

9. The difference of a number and four is greater than forty-two.

$x - 4 > 42$

10. Three-fourths of a number is at most -18.

$\frac{3}{4}x \leq -18$

11. A number divided by 7 is at least negative three.

$\frac{x}{7} \geq -3$

12. Negative four times a number is no less than 204.

$-4x \geq 204$

13. Claudia can spend up to \$1500 on paper for her business this year. Paper costs \$32 per box. Which inequality represents the number of boxes of paper p she can buy this year?

F $32p \leq 1500$
G $32p \geq 1500$

H $32 + p \geq 1500$
J $32 + p \leq 1500$

HW Check: Solving Single Step Inequalities

1. $-11 > n$

2. $x < 5$

3. $-7 > x$

4. B

5. $x < -33$

6. $2 \leq x$

7. $x \geq 5$

8. $m > -8/9$

9. $x > 46$

10. $x \leq -24$

11. $x \geq -21$

12. $x \leq -51$

13. F

Make sure you graph
the answers on the
appropriate number line
If you have questions
please tweet or email
sara.korotkow@risd.org
Wheel spin Monday!!