

SOLVING INEQUALITIES

10 MARCH 2014



Lesson Description

In this lesson we:

- Solve Linear Inequalities
- Show graphical solution to linear inequalities
- Discuss interval notation



Summary

- When multiplying or dividing an inequality by a negative number remember to reverse the sign.
Example: $2 < 3$
- Taking reciprocals reverses the sign of the inequality.
Example $2 < 4$



Test Yourself

Question 1

True or false:

Adding or subtracting a negative number on both sides of an inequality has an effect on the sign of the inequality.

Question 2

True or false:

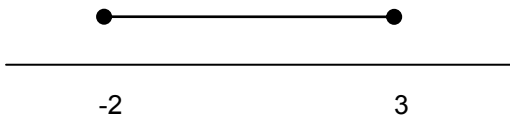
Multiplying or dividing an inequality by a natural number does not affect the sign of the inequality.

Question 3

If $\frac{1}{x} < \frac{1}{y}$ and $x, y > 0$ then

- A $x < y$
- B $y > x$
- C $x > y$
- D $y < x$

Question 4



Represent the above graphical solution in interval notation

- A $x > -2, x < 3$
- B $x \in (-2; 3)$
- C $-2 < x < 3$
- D $x \in [-2; 3]$

Question 5

The solution to $-1 < 3 - x < 1$ is:

- A $x \in (2; 4)$
- B $x \in [2; 4)$
- C $x \in (-2; 4)$
- D $x \in (-2; -4)$



Improve your Skills

Question 1

Solve for x and illustrate your answer on a number line:

a.) $x + \frac{x}{3} < 11 - \frac{x}{2}$

b.) $3y - \frac{4y+4}{16} > \frac{3(y-1)}{4}$

Question 2

Solve for x and give your answer in interval notation:

$-3 \leq -2x + 3 < 11, x \in \mathbb{R}$

Question 3

Solve for x : $ax - bx > 2a - 2b$

- a.) If $a > b$
- b.) If $a < b$
- c.) If $a = b$