MATHEMATICS · GRADES 7-9

Inequalities

Difficulty level: Intermediate

Mathematics: Grades 7-9

This document was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

Overview of the concept

This is how you describe a range instead of a single number, like the minimum age to drive or the most you can spend and stay in budget. Real life rarely gives you one exact number, it gives you a limit, and inequalities are how you write that limit down. You use them for age limits, speed limits, budgets, and any rule that says at least this much or at most that much.



Rule

Solve an inequality the same way you solve an equation, except for one thing: when you multiply or divide both sides by a negative number, flip the sign.

Adding, subtracting, and multiplying or dividing by a positive number never change the sign.

© 2026 Brett Robbins. All Rights Reserved.

Worked examples

EXAMPLE 1

Q Solve $2x + 3 < 11$

SOLUTION

Solve $2x + 3 < 11$

Work it one step at a time, top to bottom.

$2x + 3 - 3 < 11 - 3$

$2x < 8$

$2x \div 2 < 8 \div 2$

$x < 4$

So any number less than 4 works, for example 3.

EXAMPLE 2

Q Solve $-3x > 12$

SOLUTION

Solve $-3x > 12$

Work it one step at a time, top to bottom.

Divide both sides by (-3). Because (-3) is negative, the sign flips:

$-3x \div (-3) < 12 \div (-3)$

$x < -4$

So any number less than -4 works, for example -5.

© 2026 Brett Robbins. All Rights Reserved.

Practice questions

1 Solve $x + 5 < 12$

- **A** $x < 7$
- **B** $x \leq 7$
- **C** $x > 7$
- **D** $x \geq 7$

Understand It with Pulse | Flag a mistake

2 Solve $x - 3 > 4$

- **A** $x \leq 7$
- **B** $x > 7$
- **C** $x < 7$
- **D** $x \geq 7$

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

3 Solve $2x < 14$

- **A** $x > 7$
- **B** $x \leq 7$
- **C** $x < 7$
- **D** $x \geq 7$

Understand It with Pulse | Flag a mistake

4 Which number is a solution of $x > 7$?

- **A** 8
- **B** 7
- **C** 6
- **D** 0

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

5 Which inequality means x is at most 7?

A $x \leq 7$

B $x < 7$

C $x \geq 7$

D $x > 7$

Understand It with Pulse | Flag a mistake

6 Solve $-x > 5$ (remember to flip the sign)

A $x \leq -5$

B $x < -5$

C $x > -5$

D $x \geq -5$

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

7 Solve $2x + 1 < 9$

- **A** $x > 4$
- **B** $x \geq 4$
- **C** $x < 4$
- **D** $x \leq 4$

Understand It with Pulse | Flag a mistake

8 Solve $3(x - 2) < 12$

- **A** $x < 6$
- **B** $x > 6$
- **C** $x < 2$
- **D** $x > 2$

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

9

Solve -x + 3 > 1 (remember to flip the sign)

A x < 2

B x > 2

C x < -2

D x > -2

Understand It with Pulse | Flag a mistake

10

Is x = 3 a solution of x < 5? Answer yes or no

A Yes

B No

Understand It with Pulse | Flag a mistake

© 2026 Brett Robbins. All Rights Reserved.

ANSWER KEY

1. $x < 7$

2. $x > 7$

3. $x < 7$

4. 8

5. $x \leq 7$

6. $x < -5$

7. $x < 4$

8. $x < 6$

9. $x < 2$

10. Yes

© 2026 Brett Robbins. All Rights Reserved.