

Warm-Up Notes

MAT 100: ELEMENTARY ALGEBRA

— Fall 2026 —

SECTION 2.7 SOLVE LINEAR INEQUALITIES

Install — 10 minute lesson

Objectives of this Section

- Graph inequalities on the number line
- Solve inequalities using the Subtraction and Addition Properties of inequality
- Solve inequalities using the Division and Multiplication Properties of inequality
- Solve inequalities that require simplification
- Translate to an inequality and solve

Skills**Introduced in this section:**

- **EQN.IQ** — Solving inequalities

Also practiced: WRD.EQ (Decoding an explicit equation), WRD.NM (Naming the model).

Lesson

Solving an inequality uses the exact same moves as solving an equation — until you multiply or divide by a negative number. That one move flips the inequality sign, and it's the new rule this whole section turns on. Once you have a solution, you'll show it two ways: graphed on a number line, and written in interval notation.

I do

Watch. Translate to an inequality and solve. Then write the solution in interval notation and graph on the number line. Negative five times r is no more than 95.

We do

Together. Solve each inequality using the Division and Multiplication Properties of Inequality. Graph the solution on the number line, and write the solution in interval notation. $\frac{2}{3}y > -36$

You do

Your turn. Solve each inequality, graph the solution on the number line, and write the solution in interval notation. $a + \frac{3}{4} \geq \frac{7}{10}$

Your turn. Graph each inequality on the number line. (a) $x > 1$ (b) $x < -2$ (c) $x \geq -3$

Practice

1. Translate to an inequality and solve. Then write the solution in interval notation and graph on the number line. Twelve less than x is no less than 21.

2. Solve each inequality, graph the solution on the number line, and write the solution in interval notation. $18q - 4(10 - 3q) < 5(6q - 8)$

3. Solve each inequality, graph the solution on the number line, and write the solution in interval notation. $v + 12 > 3$

4. Solve each inequality using the Division and Multiplication Properties of Inequality. Graph the solution on the number line, and write the solution in interval notation. $\frac{a}{-3} \leq 9$