

Solving and Graphing Two-Step Inequalities

Grade 7 math · Test · Standards: 7.EE.B.4b

Name: _____ Date: _____ Class: _____

This test covers solving and graphing two-step inequalities, including negative coefficients, decimals and fractions, and interpreting solutions in real situations. Show every step and mark any sign reversal. Calculators are not allowed. Plan on 45 minutes for the 8 questions.

Standards: 7.EE.B.4b · **Level:** Grade 7

Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Solve and Graph (2 points)

Solve $5x - 8 > 22$ and graph the solution on the number line.



Blank number line.

Question 2 Negative Coefficient (2 points)

Solve $-3x + 7 < -8$.

Question 3 Decimal Inequality (2 points)

Solve $0.4x - 1.6 < 2.4$.

Question 4 Negative Factor Outside (3 points)

Consider $-4(x + 2) < 20$.

- Solve the inequality. (2 points)
- Explain why the direction of the inequality sign changed. (1 point)

Question 5 Fraction and Negative (3 points)

Solve $-\frac{3}{4}x - 2 > 4$. Show every step.

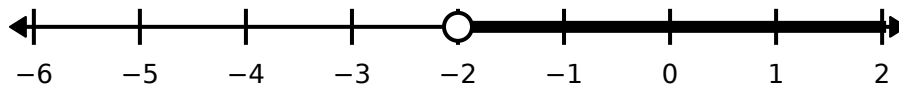
Question 6 Transit Card (3 points)

Teresa has \$85 on a transit card. Each ride costs \$2.75. She wants more than \$30 left on the card after r rides.

- Write an inequality for r . (1 point)
- Solve the inequality. (1 point)
- State the greatest whole number of rides she can take. (1 point)

Question 7 Reading a Graph (3 points)

The graph shows the solution set of a two-step inequality.



A graphed solution set.

- Write the solution as an inequality. (1 point)
- Is -2 a solution? Explain. (1 point)
- Show that $3x + 4 > -2$ has this solution set. (1 point)

Question 8 Find the Mistake (2 points)

Kai solved $-6x + 5 > 29$ and wrote: $-6x > 24$, so $x > -4$.

- Identify his error. (1 point)
- Write the correct solution. (1 point)