LESSON MAKER PRO

Find the Boundary

Write and solve one-step inequalities.

GRADE 6 · 6.AT.C.10.b

6.AT.C.10.b "Write and solve one-step inequalities of the form x + p > q, x − p > q, px > q and x/p > q (using ≥, >, ≤, <) where p and q are nonnegative rational numbers."

NAME _____ DATE _____

KEEP IT BALANCED

To get x alone, undo its operation on both sides of the inequality. Adding, subtracting, multiplying, or dividing by a positive number keeps the inequality sign pointing the same way.

WORKED EXAMPLE

Solve: $x + 7/8 \leq 23/8$

1. Subtract 7/8 from both sides: $x \leq 23/8 - 7/8$.
2. Simplify: $x \leq 16/8$.

Answer: $x \leq 2$

PRACTICE 6 problems

1 Solve: $x + 2/3 > 4/3$

ANSWER _____

2 Solve: $x - 3/5 \leq 1/5$

ANSWER _____

3 Solve: $4x \geq 10$

ANSWER _____

4 Solve: $x/6 < 3/4$

ANSWER _____

5 Solve: $x - 1.25 > 2.5$

ANSWER _____

6 Solve: $(2/5)x \leq 6/5$

ANSWER _____

APPLY IT Show your work

1 You have played a game for 12.5 minutes. You can play for at most 20 minutes total. Let x be the number of minutes you play next. Write and solve an inequality for x.

WORK SPACE

ANSWER _____

2 A class divides x stickers equally among 3 prize packs. Each pack needs at least 4 stickers. Write and solve an inequality for x. What is the fewest stickers the class can use?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student solves (3/4)x > 9/8 and writes x > 27/32. Explain the error and give the correct solution.

WORK SPACE AND ANSWER

ANSWER KEY

Find the Boundary

GRADE 6 · 6.AT.C.10.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve: x + 2/3 > 4/3	**x > 2/3**
2	Solve: x − 3/5 ≤ 1/5	**x ≤ 4/5**
3	Solve: 4x ≥ 10	**x ≥ 5/2**
4	Solve: x/6 < 3/4	**x < 9/2**
5	Solve: x − 1.25 > 2.5	**x > 3.75**
6	Solve: (2/5)x ≤ 6/5	**x ≤ 3**

PART 2 · APPLY IT

1. **x + 12.5 ≤ 20; x ≤ 7.5 minutes** The time already played plus the extra time cannot exceed 20 minutes. Subtract 12.5 from both sides.
2. **x/3 ≥ 4; x ≥ 12; 12 stickers** Dividing x by 3 gives the stickers in each pack. Multiply both sides by 3 to find the least possible total.

CHALLENGE

The student multiplied by 3/4 instead of dividing by 3/4. Multiply both sides by 4/3 to get x > 3/2.

Accept equivalent fractions or decimals for solution boundaries. In the word problems, x represents a nonnegative amount; sticker totals must be whole numbers divisible by 3.