LESSON MAKER PRO

Inequality Limits

Solve to find values that make a statement true.

GRADE 7 · 7.PFA.4.f

7.PFA.4.f "Solve problems in context that require the solution of a one- or two-step inequality."

NAME _____ DATE _____

SOLVE AND COMPARE

Use inverse operations to get x alone, just as you do when solving an equation. Keep the inequality sign pointing the same way unless you multiply or divide by a negative number. Then reverse the sign.

WORKED EXAMPLE

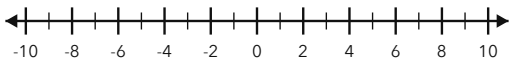
Solve: 5x - 7 > 18

1. Add 7 to both sides: 5x > 25
2. Divide both sides by 5: x > 5

Answer: x > 5

PRACTICE 6 problems

1 Solve x + 9 ≤ 13. Then graph the solution on the number line.



ANSWER _____

2 Solve: 3x > 24

ANSWER _____

3 Solve: 4x + 6 ≥ 30

ANSWER _____

4 Solve: -2x < 16

ANSWER _____

5 Solve: 9 - 4x > -3

ANSWER _____

6 Solve: x/3 - 4 ≥ 6

ANSWER _____

APPLY IT Show your work

1 A gaming club can spend no more than $46 on 4 identical controller grips and a $10 banner. Each controller grip costs x dollars. Write and solve an inequality to find the greatest possible price of one grip.

WORK SPACE

ANSWER _____

2 Mia starts a game with 13 points. Each completed challenge earns 4 points. She needs at least 37 points. Write and solve an inequality to find the least number of challenges Mia must complete.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A school store has $64. It buys x notebooks for $4 each and must have at least $20 left. What is the greatest whole number of notebooks it can buy? Show why the inequality sign changes or does not change.

WORK SPACE AND ANSWER

ANSWER KEY

Inequality Limits

GRADE 7 · 7.PFA.4.f

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve $x + 9 \leq 13$. Then graph the solution on the number line.	**$x \leq 4$; closed point at 4 and shade left**
2	Solve: $3x > 24$	**$x > 8$**
3	Solve: $4x + 6 \geq 30$	**$x \geq 6$**
4	Solve: $-2x < 16$	**$x > -8$**
5	Solve: $9 - 4x > -3$	**$x < 3$**
6	Solve: $x/3 - 4 \geq 6$	**$x \geq 30$**

PART 2 · APPLY IT

1. **$4x + 10 \leq 46$; $x \leq 9$, so one grip can cost at most $9.** Subtract 10 from both sides to get $4x \leq 36$. Divide by 4 to get $x \leq 9$.
2. **$13 + 4x \geq 37$; $x \geq 6$, so Mia must complete at least 6 challenges.** Subtract 13 from both sides to get $4x \geq 24$. Divide by 4 to get $x \geq 6$.

CHALLENGE

$64 - 4x \geq 20$; $-4x \geq -44$; $x \leq 11$. The greatest whole number of notebooks is 11. The sign changes when dividing by -4.

Accept equivalent inequality forms and correct graphs with an open or closed point as appropriate. For the context problems, accept the stated whole-number minimum or maximum when the quantity is a number of challenges or notebooks.