

Inequality Limits Lab

Solve for the values that make each 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 _____

KEEP IT BALANCED

Use inverse operations to get x alone, and do the same operation to both sides of the inequality. If you multiply or divide by a negative number, reverse the inequality sign.

WORKED EXAMPLE

Solve: $5x + 8 > 33$

1. Subtract 8 from both sides: $5x > 25$

2. Divide both sides by 5: $x > 5$

Answer: $x > 5$

PRACTICE 6 problems

1 Solve: $x + 7 < 19$

ANSWER _____

2 Solve: $4x > 28$

ANSWER _____

3 Solve: $x/3 + 4 \geq 10$

ANSWER _____

4 Solve: $6 - 2x \leq 18$

ANSWER _____

5 Solve: $-3x + 1 > 13$

ANSWER _____

6 Solve: $2(x + 4) \geq 22$

ANSWER _____

APPLY IT Show your work

- 1** You have \$24 saved for a game. You earn \$3 for each dog-walking job and want at least \$42. Write and solve an inequality for x , the number of jobs. How many jobs do you need?

WORK SPACE

ANSWER _____

- 2** A video-editing app lets you store up to 90 minutes of clips. You already stored 18 minutes, and each new clip is 12 minutes. Write and solve an inequality for x , the number of new clips. How many new clips can you store?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A student solves $-4x + 18 \leq 2$ and says $x \leq 4$. Is the student correct? Explain your reasoning.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Solve: $x + 7 < 19$	$x < 12$
2	Solve: $4x > 28$	$x > 7$
3	Solve: $x/3 + 4 \geq 10$	$x \geq 18$
4	Solve: $6 - 2x \leq 18$	$x \geq -6$
5	Solve: $-3x + 1 > 13$	$x < -4$
6	Solve: $2(x + 4) \geq 22$	$x \geq 7$

PART 2 • APPLY IT

1. $x \geq 6$, so you need at least 6 jobs. Write $24 + 3x \geq 42$. Subtract 24, then divide by 3 to get $x \geq 6$.
2. $x \leq 6$, so you can store at most 6 new clips. Write $18 + 12x \leq 90$. Subtract 18, then divide by 12 to get $x \leq 6$.

CHALLENGE

No. The correct solution is $x \geq 4$ because dividing by -4 reverses the inequality sign.

Accept equivalent inequality forms. For the word problems, accept the stated whole-number interpretation because jobs and clips are counted in whole numbers.