LESSON MAKER PRO

Line It Up

Solve two-step equations and inequalities, then show each answer on a number line.

GRADE 7 · TEKS 7.10.B

7.10.B "represent solutions for one-variable, two-step equations and inequalities on number lines; and"

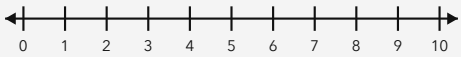
NAME _____ DATE _____

SOLVE, THEN GRAPH

Undo addition or subtraction first. Then undo multiplication or division. For an inequality, reverse the inequality sign only when you multiply or divide by a negative number. Use a closed circle for =, ≤, or ≥. Use an open circle for < or >.

WORKED EXAMPLE

Solve and graph: $3x + 7 > 22$

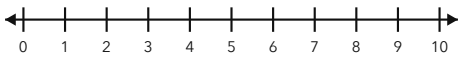


1. Subtract 7 from both sides: $3x > 15$.
2. Divide both sides by 3: $x > 5$.
3. Put an open circle at 5 and shade to the right.

Answer: x > 5, open circle at 5 and shade to the right.

PRACTICE 6 problems

1 Solve and graph: $4x - 9 = 15$



ANSWER _____

2 Solve and graph: $2x + 8 \leq 20$

ANSWER _____

3 Solve and graph: $-2x + 1 > 13$

ANSWER _____

4 Solve and graph: $6x - 8 < 16$

ANSWER _____

5 Solve and graph: $x/4 + 6 \geq 9$

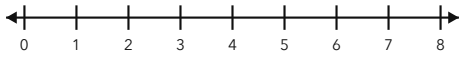
ANSWER _____

6 Solve and graph: $20 - 2x = 4$

ANSWER _____

APPLY IT Show your work

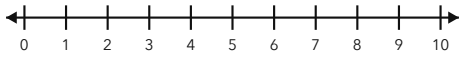
1 Mia has $34 saved for headphones that cost $58. She earns $6 each week by helping a neighbor. Let w be the number of weeks. Write and solve an inequality to show how many weeks Mia needs. Then graph the solution.



WORK SPACE

ANSWER _____

2 A gaming club pays a $12 court fee plus $4 for each player. The club can spend no more than $36. Let p be the number of players. Write and solve an inequality, then graph the solution.



WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve and graph: -2(x - 6) > 10. Explain in one sentence why the inequality sign changes.

WORK SPACE AND ANSWER

ANSWER KEY

Line It Up

GRADE 7 · TEKS 7.10.B

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve and graph: 4x - 9 = 15	**x = 6, closed circle at 6.**
2	Solve and graph: 2x + 8 ≤ 20	**x ≤ 6, closed circle at 6 and shade to the left.**
3	Solve and graph: -2x + 1 > 13	**x < -6, open circle at -6 and shade to the left.**
4	Solve and graph: 6x - 8 < 16	**x < 4, open circle at 4 and shade to the left.**
5	Solve and graph: x/4 + 6 ≥ 9	**x ≥ 12, closed circle at 12 and shade to the right.**
6	Solve and graph: 20 - 2x = 4	**x = 8, closed circle at 8.**

PART 2 · APPLY IT

1. **w ≥ 4, closed circle at 4 and shade to the right.** Write 34 + 6w ≥ 58. Subtract 34 and divide by 6 to get w ≥ 4.
2. **p ≤ 6, closed circle at 6 and shade to the left. The club can have at most 6 players.** Write 12 + 4p ≤ 36. Subtract 12 and divide by 4 to get p ≤ 6.

CHALLENGE

x < 1, open circle at 1 and shade to the left. The inequality sign changes because both sides are divided by -2.

Accept equivalent inequality wording and any correct number-line graph with the stated open or closed circle and direction of shading. For the word problems, accept the inequalities 34 + 6w ≥ 58 and 12 + 4p ≤ 36.