LESSON MAKER PRO

Solve and Show

Solve equations and graph inequalities.

GRADE 7 · 7.A.3

7.A.3 "Represent mathematical situations using equations and inequalities involving variables and rational numbers. Write and solve problems leading to linear equations with one variable in the form px + q = r and p(x + q) = r, where p, q..."

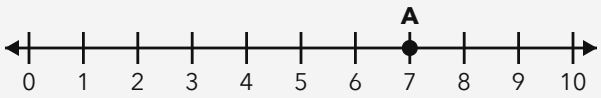
NAME _____ DATE _____

UNDO AND GRAPH

To solve an equation or inequality, undo operations on both sides until x is alone. For < or >, use an open circle at the boundary on a number line, then shade the values that make the inequality true.

WORKED EXAMPLE

Solve x + 2 < 9. Point A marks the boundary on the number line. Graph the solutions.

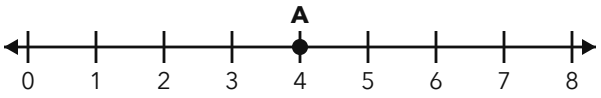


1. Subtract 2 from both sides: x < 9 - 2.
2. Simplify: x < 7.
3. Draw an open circle at A and shade to the left.

Answer: x < 7; open circle at 7, shaded left

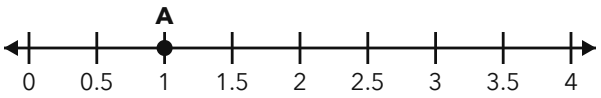
PRACTICE 6 problems

1 Solve x + 1 > 5. Use point A on the number line to graph the solutions.



ANSWER _____

2 Solve $x + 1/2 < 3/2$. Use point A on the number line to graph the solutions.



ANSWER _____

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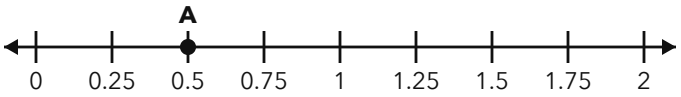
3 Solve $3x + 1 = 16$.

ANSWER _____

4 Solve $4(x + 1/4) = 13$.

ANSWER _____

5 Solve $x + 3/4 > 5/4$. Use point A on the number line to graph the solutions.



ANSWER _____

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6 Solve $(1/2)x + 3/4 = 11/4$.

ANSWER _____

APPLY IT Show your work

1 An arcade charges $4 to enter and $2.50 per ride. You spend $19 in all. Let x be the number of rides. Write an equation and solve for x.

WORK SPACE

ANSWER _____

2 You have $6 saved toward a $14 hoodie. Let x be the extra dollars you save. Write and solve an inequality for when you still cannot afford it. Use point A on the number line to graph the possible amounts.



ANSWER _____

CHALLENGE One step up

A student divides both sides of 5(x + 1/2) = 15/2 by 5, then says x = 3/2. Explain the missing step and find x.

WORK SPACE AND ANSWER

ANSWER KEY # Solve and Show

GRADE 7 · 7.A.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve x + 1 > 5. Use point A on the number line to graph the solutions.	**x > 4; open circle at 4, shaded right**
2	Solve x + 1/2 < 3/2. Use point A on the number line to graph the solutions.	**x < 1; open circle at 1, shaded left**
3	Solve 3x + 1 = 16.	**x = 5**
4	Solve 4(x + 1/4) = 13.	**x = 3**
5	Solve x + 3/4 > 5/4. Use point A on the number line to graph the solutions.	**x > 1/2; open circle at 1/2, shaded right**
6	Solve (1/2)x + 3/4 = 11/4.	**x = 4**

PART 2 · APPLY IT

1. **2.50x + 4 = 19; x = 6 rides** Subtract 4 from 19, then divide 15 by 2.50.
2. **x + 6 < 14; 0 <= x < 8. Open circle at 8, shaded left through 0.** Subtract 6 from both sides to get x < 8. Since x is an amount saved, it cannot be negative.

CHALLENGE

Dividing gives x + 1/2 = 3/2, not x = 3/2. Subtract 1/2 from both sides to get x = 1.

Accept equivalent fractions or decimals. On each inequality graph, the boundary must have an open circle and the shading must go in the correct direction.