LESSON MAKER PRO

Solve It Step by Step

Use inverse operations to solve equations and inequalities.

GRADE 7 · MA.7.AR.2

MA.7.AR.2 "Write and solve equations and inequalities in one variable."

NAME _____ DATE _____

UNDO OPERATIONS

Use inverse operations to get x alone. Do the same operation to both sides. When you multiply or divide an inequality by a negative number, reverse the inequality sign.

WORKED EXAMPLE

Solve: $7x + 11 = 46$

1. $7x + 11 = 46$
2. $7x = 35$
3. $x = 5$

Answer: x = 5

PRACTICE 6 problems

1 Solve: $x - 9 = 14$

ANSWER _____

2 Solve: $3x = 27$

ANSWER _____

3 Solve: $x/4 + 6 = 13$

ANSWER _____

4 Solve: $-2x + 8 = 20$

ANSWER _____

5 Solve: $6x - 3 \leq 33$

ANSWER _____

6 Solve: $-8x > 24$

ANSWER _____

APPLY IT Show your work

1 Maya has $52. She pays a $16 event fee and buys 3 identical snack packs. She has $9 left. Let x be the cost of one snack pack. Write and solve an equation to find x.

WORK SPACE

ANSWER _____

2 A game rental app gives you $40 in credit. It charges a $4 unlock fee and $3 for each game rental. Let x be the number of games you can rent without spending more than $40. Write and solve an inequality.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve the inequality. Then explain how you know your answer is correct: $2(x + 3) - 4 > x + 6$

WORK SPACE AND ANSWER

ANSWER KEY

Solve It Step by Step

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve: x - 9 = 14	**x = 23**
2	Solve: 3x = 27	**x = 9**
3	Solve: x/4 + 6 = 13	**x = 28**
4	Solve: -2x + 8 = 20	**x = -6**
5	Solve: 6x - 3 ≤ 33	**x ≤ 6**
6	Solve: -8x > 24	**x < -3**

PART 2 · APPLY IT

1. **16 + 3x + 9 = 52; x = 9** Add the event fee, the cost of 3 snack packs, and the money left. Solve 3x + 25 = 52 to get x = 9.
2. **4 + 3x ≤ 40; x ≤ 12, so 12 games** The total cost cannot be more than $40, so write 4 + 3x ≤ 40. Subtract 4 and divide by 3 to get x ≤ 12.

CHALLENGE

x > 4. Distributing and simplifying gives 2x + 2 > x + 6, then subtracting x and 2 gives x > 4.

Accept equivalent equation forms in the word problems, such as 3x + 25 = 52. For inequalities, accept equivalent wording such as "more than 4" for x > 4 and "at most 12 games" for x ≤ 12.