LESSON MAKER PRO

Equation Toolkit

Use inverse operations to solve linear and literal equations.

GRADE 8 · 8.PAR.3.6

8.PAR.3.6 "Use algebraic reasoning to fluently manipulate linear and literal equations expressed in various forms to solve relevant, mathematical problems."

NAME _____ DATE _____

UNDO OPERATIONS

To solve a linear equation, undo operations in reverse order while keeping both sides balanced. Combine like terms or use the distributive property first when needed, then isolate the variable.

WORKED EXAMPLE

Solve: $6x + 11 = 47$

1. Subtract 11 from both sides: $6x = 36$
2. Divide both sides by 6: $x = 6$

Answer: x = 6

PRACTICE 6 problems

1 Solve: $4x + 9 = 29$

ANSWER _____

2 Solve: $3(x - 4) = 24$

ANSWER _____

3 Solve: $18 - 2x = 8$

ANSWER _____

4 Solve: $x/5 + 3 = 7$

ANSWER _____

5 Solve: $(2/3)x - 4 = 10$

ANSWER _____

6 Solve for y: $5x + 2y = 30$

ANSWER _____

APPLY IT Show your work

1 A music streaming app charges a $4 sign-up fee and $3 each month. Your total cost is $25. How many months did you pay for?

WORK SPACE

ANSWER _____

2 An esports club has $86 to spend on team stickers. Shipping costs $5, and each sticker pack costs $9. How many sticker packs can the club buy?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve: $5(2x - 3) + 1 = 3(x + 8)$

WORK SPACE AND ANSWER

ANSWER KEY

Equation Toolkit

GRADE 8 · 8.PAR.3.6

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve: 4x + 9 = 29	**x=5**
2	Solve: 3(x - 4) = 24	**x = 12**
3	Solve: 18 - 2x = 8	**x=5**
4	Solve: x/5 + 3 = 7	**x = 20**
5	Solve: (2/3)x - 4 = 10	**x = 21**
6	Solve for y: 5x + 2y = 30	**y = 15 - (5/2)x**

PART 2 · APPLY IT

1. **7 months** Write 4 + 3m = 25. Subtract 4, then divide by 3 to get m = 7.
2. **9 sticker packs** Write 9p + 5 = 86. Subtract 5, then divide by 9 to get p = 9.

CHALLENGE

x = 38/7

Accept equivalent forms for the literal equation, including 2y = 30 - 5x. For the challenge, accept x = 5 3/7 as equivalent to x = 38/7.