LESSON MAKER PRO

Equation Escape

Use inverse operations to isolate x.

GRADE 8 · 8.EE.C.7

CCSS.Math.Content.8.EE.C.7 "Solve linear equations in one variable."

NAME _____ DATE _____

BALANCE AND SOLVE

To solve a linear equation, use inverse operations to get the variable alone. First simplify each side by distributing and combining like terms, then keep the equation balanced by doing the same operation to both sides.

WORKED EXAMPLE

$5(x - 2) = 3x + 14$

1. Distribute: 5x - 10 = 3x + 14
2. Subtract 3x: 2x - 10 = 14
3. Add 10: 2x = 24
4. Divide by 2: x = 12

Answer: x = 12

PRACTICE 6 problems

1 7x + 8 = 50

ANSWER _____

2 4x - 7 = x + 20

ANSWER _____

3 x/7 + 9 = 15

ANSWER _____

4 8(x + 1) = 72

ANSWER _____

5 18 - 7x = -31

ANSWER _____

6 9(x - 4) + 6 = 4x + 45

ANSWER _____

APPLY IT Show your work

1 A music app has a $7 activation fee and costs $9 each month. You have spent $70 total. How many months have you paid for the app?

WORK SPACE

ANSWER _____

2 Plan A charges $7 per month plus an $8 start-up fee. Plan B charges $4 per month plus a $26 start-up fee. After how many months will the plans cost the same amount?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve the equation. Show how you clear the fractions before isolating x: (x - 8)/4 + 7 = (x + 16)/8

WORK SPACE AND ANSWER

ANSWER KEY

Equation Escape

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	7x + 8 = 50	**x=6**
2	4x - 7 = x + 20	**x=9**
3	x/7 + 9 = 15	**x = 42**
4	8(x + 1) = 72	**x=8**
5	18 - 7x = -31	**x=7**
6	9(x - 4) + 6 = 4x + 45	**x = 15**

PART 2 · APPLY IT

1. **7 months** Let m be the number of months. Solve 7 + 9m = 70 to get m = 7.
2. **6 months** Let m be the number of months. Solve 7m + 8 = 4m + 26, so 3m = 18 and m = 6.

CHALLENGE

x = -24

Accept equivalent algebraic steps that keep both sides balanced and reach the stated solution. For word problems, accept answers with the correct unit, months.