LESSON MAKER PRO

Keep It Equal

Solve equations and check what x means.

GRADE 7 · 7.AT.C.8.b

7.AT.C.8.b "Solve equations of these forms flexibly and efficiently. Explain the solution process and how it connects to the original statement of equality."

NAME _____ DATE _____

KEEP BOTH SIDES EQUAL

An equation says that two expressions have the same value. To keep them equal, do the same operation to both sides. If you see parentheses, you can undo the multiplication first or distribute first, then solve for x.

WORKED EXAMPLE

Solve $5(x + 13) = 90$.

1. Divide both sides by 5: $x + 13 = 18$.
2. Subtract 13 from both sides: $x = 5$.
3. Check the original equation: $5(5 + 13) = 90$.

Answer: x = 5

PRACTICE 6 problems

1 Solve $2x + 11 = 29$.

ANSWER _____

2 Solve $6x - 4 = 32$.

ANSWER _____

3 Solve $-3x + 10 = 22$.

ANSWER _____

4 Solve $4(x + 2) = 36$.

ANSWER _____

5 Solve $-2(x - 9) = -16$.

ANSWER _____

6 Solve $(x - 1)/3 = 8$. Check your answer in the original equation.

ANSWER _____

APPLY IT Show your work

1 An esports club orders 4 matching team shirts. Each shirt costs the same amount, and shipping costs $8 for the whole order. The club pays $72 total. What is the price of one shirt?

WORK SPACE

ANSWER _____

2 At a school movie night, 3 friends each buy a ticket and a $2 snack. Together they spend $42. What is the price of one ticket?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve 4(x - 6) = 32 in two ways: divide both sides by 4 first, then start again and distribute first. Explain why both ways keep the equation equal. Check x in the original equation.

WORK SPACE AND ANSWER

ANSWER KEY

Keep It Equal

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve 2x + 11 = 29.	**x = 9**
2	Solve 6x - 4 = 32.	**x = 6**
3	Solve -3x + 10 = 22.	**x = -4**
4	Solve 4(x + 2) = 36.	**x = 7**
5	Solve -2(x - 9) = -16.	**x = 17**
6	Solve (x - 1)/3 = 8. Check your answer in the original equation.	**x = 25; (25 - 1)/3 = 8.**

PART 2 · APPLY IT

1. **$16 per shirt** Let x be the price of one shirt. From 4x + 8 = 72, subtract 8 and divide by 4 to get x = 16.
2. **$12 per ticket** Let x be the ticket price. From 3(x + 2) = 42, divide by 3 and subtract 2 to get x = 12.

CHALLENGE

Dividing first: x - 6 = 8, so x = 14. Distributing first: 4x - 24 = 32, then 4x = 56, so x = 14. Dividing both sides by the same number keeps them equal, and distributing rewrites the left side without changing its value. Check: 4(14 - 6) = 32.

Accept either valid solving method for the practice and word problems. In the challenge, look for two distinct methods, an explanation of equality, and a check in the original equation.