LESSON MAKER PRO

Model It Out

Use equations and inequalities to make sense of real situations.

GRADE 8 · 8.PAR.3

8.PAR.3 "Create and interpret expressions within relevant situations. Create, interpret, and solve linear equations and linear inequalities in one variable to model and explain real phenomena."

NAME _____ DATE _____

BUILD, SOLVE, INTERPRET

Use x for an unknown amount. Write an equation when two amounts are equal, and write an inequality when a situation has a limit such as at most or no more than. Solve by undoing operations in reverse order, then check that your answer fits the situation.

WORKED EXAMPLE

Solve: $4x + 11 = 35$

1. Subtract 11 from both sides: $4x = 24$
2. Divide both sides by 4: $x = 6$
3. Check: $4(6) + 11 = 35$

Answer: x = 6

PRACTICE 6 problems

1 Solve: 9x + 2 = 47

ANSWER _____

2 Solve: 12 - 3x = -9

ANSWER _____

3 Solve: 5x - 2 <= 38

ANSWER _____

4 A club charges a $13 joining fee and $5 per meeting. Its total cost is 13 + 5x. What does 5x represent?

ANSWER _____

5 A player has 17 points and earns 3 points for each win. Write and solve an equation to find how many wins are needed to reach 32 points.

ANSWER _____

6 Tickets cost $7 each. You have $52. Write an inequality, then find the greatest number of tickets you can buy.

ANSWER _____

APPLY IT Show your work

1 You want headphones that cost $63. You already have $18 and save $9 each week. Write and solve an equation to find how many weeks you need to save.

WORK SPACE

ANSWER _____

2 A streaming service costs $10 each month. You have $59 to spend. Write and solve an inequality to find the greatest number of whole months you can pay for.

WORK SPACE

ANSWER _____

CHALLENGE One step up

An art club has $93. It buys a $13 banner and art kits that cost $8 each. How many kits can it buy? Write an inequality and explain why your answer is the greatest possible whole number.

WORK SPACE AND ANSWER

ANSWER KEY

Model It Out

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve: 9x + 2 = 47	**x=5**
2	Solve: 12 - 3x = -9	**x=7**
3	Solve: 5x - 2 <= 38	**x <= 8**
4	A club charges a $13 joining fee and $5 per meeting. Its total cost is 13 + 5x. What does 5x represent?	**The cost of x meetings at $5 per meeting.**
5	A player has 17 points and earns 3 points for each win. Write and solve an equation to find how many wins are needed to reach 32 points.	**17 + 3x = 32; x = 5 wins**
6	Tickets cost $7 each. You have $52. Write an inequality, then find the greatest number of tickets you can buy.	**7x <= 52; 7 tickets**

PART 2 · APPLY IT

1. **5 weeks** Set 18 + 9x = 63. Subtract 18, then divide by 9 to get x = 5.
2. **5 months** Write 10x <= 59. Dividing by 10 gives x <= 5.9, so the greatest whole number of months is 5.

CHALLENGE

10 kits; 13 + 8x <= 93, so x <= 10. The next whole number would cost more than $93.

Accept equivalent equations and inequalities that correctly model each situation. For ticket, month, and kit questions, accept only whole-number answers that do not exceed the stated budget.