

Equation Story Builders

Turn multistep stories into equations with n .

GRADE 4 • NY-4.OA.3.a

NY-4.OA.3.a "Represent these problems using equations or expressions with a letter standing for the unknown quantity."

NAME _____

DATE _____

BUILD THE EQUATION

Let n stand for the amount you need to find. Use parentheses when a group of actions must be completed first. Then calculate inside parentheses first, followed by multiplication or division, and then addition or subtraction.

WORKED EXAMPLE

A craft club puts 15 beads in each of 8 jars. Then 24 beads are used. Let n be the number of beads left. Write an equation and solve.

1. Start with 8 groups of 15: 8×15 .
2. Subtract the beads used: $(8 \times 15) - 24 = n$.
3. Multiply, then subtract: $120 - 24 = 96$.

Answer: $(8 \times 15) - 24 = n$; $n = 96$ beads

PRACTICE 6 problems

- 1** A student buys 7 packs of pencils with 6 pencils in each pack, then finds 5 more pencils at home. Let n be the total number of pencils. Write an equation and solve.

ANSWER _____

- 2** A game club puts 63 tokens equally into 9 prize bags. Then it adds 4 tokens to each bag. Let n be the number of tokens in each bag. Write an equation and solve.

ANSWER _____

- 3** A librarian places 90 books equally on 6 carts. Then 3 books are removed from each cart. Let n be the number of books left on each cart. Write an equation and solve.

ANSWER _____

- 4** A team earns 14 points in each of 5 rounds, then loses 18 points for penalties. Let n be the final score. Write an equation and solve.

ANSWER _____

- 5** Sixty-seven trading cards are shared equally among 7 players. Let n be the number of cards each player gets. Write an equation that shows the leftover cards, then solve.

ANSWER _____

- 6** A teacher combines 5 packs of 13 markers and shares them equally among 6 tables. Let n be the number of markers each table gets. Write an equation that shows the leftover markers, then solve.

ANSWER _____

APPLY IT Show your work

- 1** A game club has 7 prize boxes with 16 game cards in each box. It gives 14 cards to winners, then shares the remaining cards equally among 7 tables. Let n be the number of cards each table gets. Write an equation and solve.

WORK SPACE

ANSWER _____

- 2** A school garden has 9 seed packets with 22 seeds in each packet. Students plant 17 seeds, then put the remaining seeds into trays that hold 7 seeds each. Let n be the number of full trays. Write an equation that shows the leftover seeds, then solve.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A comic club has 6 crates with 31 comics in each crate. It donates 17 comics, then packs the rest into boxes that hold 10 comics each. The club needs one extra box for any leftover comics. Let n be the total number of boxes needed. Show the division, write an equation using n , and explain why the leftover changes the answer.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A student buys 7 packs of pencils with 6 pencils in each pack, then finds 5 more pencils at home. Let n be the total number of pencils. Write an equation and solve.	$(7 \times 6) + 5 = n$; $n = 47$ pencils
2	A game club puts 63 tokens equally into 9 prize bags. Then it adds 4 tokens to each bag. Let n be the number of tokens in each bag. Write an equation and solve.	$(63 \div 9) + 4 = n$; $n = 11$ tokens
3	A librarian places 90 books equally on 6 carts. Then 3 books are removed from each cart. Let n be the number of books left on each cart. Write an equation and solve.	$(90 \div 6) - 3 = n$; $n = 12$ books
4	A team earns 14 points in each of 5 rounds, then loses 18 points for penalties. Let n be the final score. Write an equation and solve.	$(5 \times 14) - 18 = n$; $n = 52$ points
5	Sixty-seven trading cards are shared equally among 7 players. Let n be the number of cards each player gets. Write an equation that shows the leftover cards, then solve.	$67 = (7 \times n) + 4$; $n = 9$ cards each, with 4 cards left
6	A teacher combines 5 packs of 13 markers and shares them equally among 6 tables. Let n be the number of markers each table gets. Write an equation that shows the leftover markers, then solve.	$5 \times 13 = (6 \times n) + 5$; $n = 10$ markers each, with 5 markers left

PART 2 • APPLY IT

- $((7 \times 16) - 14) \div 7 = n$; $n = 14$ cards Multiply to find 112 cards, then subtract 14. Divide 98 cards equally among 7 tables.
- $(9 \times 22) - 17 = (7 \times n) + 6$; $n = 25$ full trays, with 6 seeds left There are 181 seeds after 17 are planted. Dividing 181 by 7 gives 25 full trays with 6 seeds left.

CHALLENGE

$(6 \times 31) - 17 = 169$; $169 \div 10 = 16$ R9. $n = 16 + 1 = 17$ boxes. The 9 leftover comics need one more box.

Accept equivalent equations that use n for the stated unknown and preserve the operations. For remainder problems, accept an equivalent division equation if it clearly shows both the quotient and the remainder.