

Math Proof Power

Use equations and words to prove each answer.

GRADE 4 • TEKS 4.1.G

4.1.G “display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.”

NAME _____

DATE _____

SHOW WHY IT WORKS

Use an equation to show each operation. To justify an answer, name a multiplication fact, division fact, or place-value strategy that proves the equation is true. Make sure your words match your calculation.

WORKED EXAMPLE

Find 46×3 . Use place value to justify your answer.

1. Split 46 into $40 + 6$.
2. $40 \times 3 = 120$ and $6 \times 3 = 18$.
3. $120 + 18 = 138$.

Answer: $46 \times 3 = 138$.

PRACTICE 6 problems

- 1** Find 48×5 . Show an equation that proves your answer.

ANSWER _____

- 2** Mia says that $32 \times 4 = 128$. Is Mia correct? Explain using place value.

ANSWER _____

- 3** Find $96 \div 2$. Write a multiplication equation that checks your answer.

ANSWER _____

- 4** A student says that $84 \div 7 = 11$ because $7 \times 11 = 84$. Is the student correct? Correct the answer and prove it with multiplication.

ANSWER _____

- 5** Noah says that $29 \times 4 = 116$. Is he correct? Explain with partial products.

ANSWER _____

- 6** Find $72 \div 9$. Write a multiplication equation to check your answer.

ANSWER _____

APPLY IT Show your work

1

A robotics club has 28 teams. Each team needs 5 batteries. Batteries come in boxes of 10. How many batteries are needed, and how many boxes must the club buy? Write equations and a sentence to justify your answer.

WORK SPACE

ANSWER _____

2

A game club earns 16 points in each of 8 rounds. The club needs 130 points to win. Does the club earn enough points? Write an equation and explain your answer.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Use two different strategies to find 25×12 . Write two equations and explain why both strategies have the same product.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find 48×5 . Show an equation that proves your answer.	$48 \times 5 = 240$.
2	Mia says that $32 \times 4 = 128$. Is Mia correct? Explain using place value.	Yes. $30 \times 4 = 120$ and $2 \times 4 = 8$, so $32 \times 4 = 128$.
3	Find $96 \div 2$. Write a multiplication equation that checks your answer.	$96 \div 2 = 48$ because $2 \times 48 = 96$.
4	A student says that $84 \div 7 = 11$ because $7 \times 11 = 84$. Is the student correct? Correct the answer and prove it with multiplication.	No. $84 \div 7 = 12$ because $7 \times 12 = 84$.
5	Noah says that $29 \times 4 = 116$. Is he correct? Explain with partial products.	Yes. $20 \times 4 = 80$ and $9 \times 4 = 36$, and $80 + 36 = 116$.
6	Find $72 \div 9$. Write a multiplication equation to check your answer.	$72 \div 9 = 8$ because $9 \times 8 = 72$.

PART 2 • APPLY IT

- $28 \times 5 = 140$, so 140 batteries are needed. $140 \div 10 = 14$, so 14 boxes are needed.** Multiply the number of teams by the batteries per team. Then divide the total batteries by the number in each box.
- $16 \times 8 = 128$. No, 128 is 2 fewer than 130.** Multiply the points per round by the number of rounds. Compare 128 with the winning total of 130.

CHALLENGE

$25 \times (10 + 2) = 250 + 50 = 300$. $25 \times (8 + 4) = 200 + 100 = 300$. Both strategies break 12 into parts, so they multiply 25 by the same total.

Accept equivalent equations, correct place-value explanations, and clear statements that accurately justify the result. Students may use different valid strategies if their calculations and reasoning are correct.