Lesson 8-3 · Session 1

Multiplication Equations

Name _____ Date _____ Period _____

Maryland Standard 6.AT.8 · Learning target — I can solve a multiplication equation by dividing both sides by the same number.
Show a model, calculation, or explanation. Answer every part and label units when needed.

Exercises 1–12 earn 1 point for a correct response and 1 for supporting work. Spiral Review and Test Practice earn 1 point each.

Learn from a model

REMEMBER

- To solve a multiplication equation, use the DIVISION property of equality: divide both sides by the same nonzero number.
- Example: 4x = 20, so x = 20 divided by 4 = 5.
- Watch out — a number written next to a variable always means multiply, so undo it by dividing.
- Check it — multiply your solution by the coefficient; you should get the right-hand side.

WORKED EXAMPLE

Solving a Multiplication Equation A stamp album has 7 pages that each hold p stamps. It holds 91 stamps in all. Solve 7p = 91.

Step 1 The variable p is multiplied by 7, so the inverse operation is division.

Step 2 Divide both sides by 7 so the equation stays balanced.

Step 3 Left side: 7p ÷ 7 leaves p. Right side: 91 ÷ 7 gives 13.

Step 4 Check: 7 × 13 makes 91, so both sides are equal.

Answer p = 13, so each page holds 13 stamps.

Practice

1. Solve: 5x = 35. _____

Answer _____

SHOW YOUR THINKING

2. Solve: 8n = 56. _____

Answer _____

SHOW YOUR THINKING

3. Solve: 3y = 27, and check your solution.

Answer _____

SHOW YOUR THINKING

4. Solve each multiplication equation.

a. 6x = 42 _____
b. 4n = 52 _____
c. 7p = 84 _____
d. 12k = 132 _____
e. 11w = 99 _____

Answer _____

SHOW YOUR THINKING

5. Domino Boxes. A game shop packs the same number of dominoes into each of 14 boxes and packs 392 dominoes in all. Write a multiplication equation and solve for the dominoes in one box.

Answer _____

SHOW YOUR THINKING

6. Fence Boards. A fence is built from 23 identical boards and stretches 161 inches. Write a multiplication equation using w for one board's width and solve it.

Answer _____

SHOW YOUR THINKING

7. Trip Tickets. A class paid $468 for 36 identical trip tickets. Write a multiplication equation using c for the cost of one ticket, solve it, and check your answer.

Answer _____

SHOW YOUR THINKING

8. To solve 9n = 72, Kofi added 9 to 72 and wrote n = 81. Explain why his move cannot be right, then solve 9n = 72 correctly and prove your answer.
Sentence Frame: "I know this because..."

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. Solve 6y = 78.

Answer _____ solution

SHOW YOUR THINKING

10. Solve 15w = 195.

Answer _____ solution

SHOW YOUR THINKING

11. Solve and Check. Solve 11n = 132 and check your answer.

Answer _____ solution and check

SHOW YOUR THINKING

12. Find the Mistake. To solve 8x = 56, Nia subtracted 8 from both sides and wrote x = 48. Explain the mistake.

Answer _____ the mistake and the solution

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 8-2 Session 2. Solve m − 8 = 17.

Answer _____

SHOW YOUR THINKING

14. From Lesson 7-5 Session 2. Reflect (−4, 6) across the y-axis.

Answer _____

SHOW YOUR THINKING

15. From Lesson 6-8 Session 2. Factor 14n + 35.

Answer _____

SHOW YOUR THINKING

Test practice

16. Solve 9k = 81.

□ A. k = 9	□ B. k = 72
□ C. k = 90	□ D. k = 729

17. Solve 7m = 105.

□ A. m = 98	□ B. m = 15
□ C. m = 112	□ D. m = 735

18. Multiplication is undone by —

□ A. subtraction	□ B. addition
□ C. division	□ D. squaring

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
Keep both sides equal and check in the original equation. Every part answered / Work shown / Units labeled when needed	I can do this: Independently / With a hint / With help Question to revisit: _____

One correction or question I want to discuss: _____

Test one proposed solution in the original equation or inequality. Show whether the statement is true.