Lesson 8-2 · Session 1

Addition Equations

Name _____ Date _____ Period _____

Maryland Standard 6.AT.8 · Learning target — I can solve an addition equation by subtracting the same amount from both sides.
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 an addition equation, use the SUBTRACTION property of equality: subtract the same number from both sides.
- Whatever you do to one side, you must do to the other side.
- Watch out — subtracting from only one side breaks the balance and gives a wrong answer.
- Check it — substitute your solution back into the original equation.

WORKED EXAMPLE

Solving an Addition Equation A shop had x hats. After 17 hats were delivered, the shop had 45 hats. Solve x + 17 = 45.

Step 1 Look at the variable side: 17 is added to x, so the inverse move is subtraction.

Step 2 Subtract 17 from both sides so the equation stays balanced.

Step 3 Left side: x + 17 − 17 leaves x. Right side: 45 − 17 gives 28.

Step 4 Check by substituting: 28 + 17 makes 45, so both sides agree.

Answer x = 28, so the shop had 28 hats before the delivery.

Practice

1. Solve: x + 7 = 15. _____

Answer _____

SHOW YOUR THINKING

2. Solve: n + 12 = 20. _____

Answer _____

SHOW YOUR THINKING

3. Solve: 9 + y = 22, and check your solution by substituting it back in.

Answer _____

SHOW YOUR THINKING

4. Solve each addition equation.

a. x + 6 = 14 _____
b. m + 15 = 33 _____
c. 21 + p = 50 _____
d. k + 48 = 90 _____
e. w + 2.5 = 9 _____

Answer _____

SHOW YOUR THINKING

5. Choir Risers. A choir had c singers on the risers. Then 16 more singers stepped up, making 54 singers in all. Write an addition equation and solve for c.

Answer _____

SHOW YOUR THINKING

6. Bus Tokens. Imani had t bus tokens. Her aunt gave her 25 more tokens, and she then had 61 tokens. Write an addition equation and solve for t.

Answer _____

SHOW YOUR THINKING

7. Garden Path. A path had b bricks. A crew laid 78 more bricks, and the path then had 143 bricks. Write an addition equation, solve for b, and check your solution.

Answer _____

SHOW YOUR THINKING

8. To solve y + 34 = 50, Rashad added 34 to both sides and wrote y = 84. Explain his mistake, then solve the equation correctly and check your answer.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. Solve n + 26 = 71.

Answer _____ solution

SHOW YOUR THINKING

10. Solve 35 + w = 82.

Answer _____ solution

SHOW YOUR THINKING

11. Solve and Check. Solve t + 6.25 = 15 and check your answer.

Answer _____ solution and check

SHOW YOUR THINKING

12. Find the Mistake. To solve x + 14 = 30, Sam added 14 to both sides and wrote x = 44. Explain the mistake.

Answer _____ the mistake and the solution

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 8-1 Session 1. Is n = 11 a solution of n − 3 = 8?

Answer _____

SHOW YOUR THINKING

14. From Lesson 7-3 Session 2. Find the distance from −6 to 9.

Answer _____

SHOW YOUR THINKING

15. From Lesson 6-7 Session 2. Find the LCM of 3 and 10.

Answer _____

SHOW YOUR THINKING

Test practice

16. Solve y + 15 = 42.

□ A. y = 630	□ B. y = 57
□ C. y = 15	□ D. y = 27

17. Solve 8 + b = 23.

□ A. b = 15	□ B. b = 31
□ C. b = 8	□ D. b = 184

18. Solving keeps the equation —

□ A. larger	□ B. balanced
□ C. smaller	□ D. unequal

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.