Lesson 6-4 · Session 1

Writing Numerical Expressions

Name _____ Date _____ Period _____

Maryland Standard 6.AT.6c · Learning target — I can write a numerical expression that matches a situation.

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

- A numerical expression uses numbers and operations (no variables).
- Translate word phrases carefully: 'the sum of', 'the product of', 'less than', etc.
- Watch out — "less than" reverses the order: 15 less than 40 is 40 − 15.
- Check it — read your expression back as a sentence and compare it with the story.

WORKED EXAMPLE

Writing an Expression from a Situation A group buys 4 tickets at $9 each and 3 programs at $6 each. Write an expression for the total cost, then find it.

Step 1 Name the parts. tickets: 4 at $9 programs: 3 at $6

Step 2 Write a product for each part. 4×9 and 3×6

Step 3 Join them with the operation the story needs. $4 \times 9 + 3 \times 6$

Step 4 Evaluate. $36 + 18 = 54$

Answer The expression is $4 \times 9 + 3 \times 6$, and the total cost is $54.

Practice

1. Write a numerical expression for: 'the sum of 8 and 5, doubled.' _____

Answer _____

SHOW YOUR THINKING

2. Write a numerical expression for: '3 less than the product of 6 and 4.' _____

Answer _____

SHOW YOUR THINKING

3. Write a numerical expression for: 'the quotient of 20 and 4, plus 7.'

Answer _____

SHOW YOUR THINKING

4. Write a numerical expression for each phrase. Do not evaluate.

a. the product of 9 and 7, minus 12 _____
b. the sum of 15 and 8, tripled _____
c. 5 more than the quotient of 40 and 8 _____
d. 10 less than the product of 4 and 11 _____
e. 6 used as a factor 3 times _____

Answer _____

SHOW YOUR THINKING

5. Craft Table. A craft table holds 7 boxes with 9 beads in each box, plus 12 loose beads. Write one expression for the beads in all, then evaluate it.

Answer _____

SHOW YOUR THINKING

6. Ticket Money. A show sells 24 adult tickets at $8 each and 30 child tickets at $5 each. Write one expression for the money collected, then evaluate it.

Answer _____

SHOW YOUR THINKING

7. Cube Crate. A crate is a cube that measures 9 inches on every edge. The unit cubes that fill it use 9 as a factor three times. Write the number of unit cubes as a power, then evaluate it.

Answer _____

SHOW YOUR THINKING

8. Write a situation that matches the expression $8 \times 15 + 30$. Say what each number stands for, then evaluate the expression.

Answer _____

SHOW YOUR THINKING

9. Write an expression for the cost of 6 shirts at $12 each plus 2 hats at $8 each.

Answer _____ the expression

SHOW YOUR THINKING

10. Write an expression for the change from $40 after buying 3 books at $9 each.

Answer _____ the expression

SHOW YOUR THINKING

11. Use Parentheses. Write an expression for the sum of 7 and 5, multiplied by 4.

Answer _____ the expression

SHOW YOUR THINKING

12. Find the Mistake. For “20 less than 6 times 9,” Jae wrote $20 - 6 \times 9$. Explain the mistake.

Answer _____ the mistake and the expression

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 6-3 Session 2. Find the value of 5 to the 2nd power.

Answer _____

SHOW YOUR THINKING

14. From Lesson 6-1 Session 2. Find $3/4 \div 3$.

Answer _____

SHOW YOUR THINKING

15. From Lesson 4-5 Session 1. If 12 is 20% of a number, find the number.

Answer _____

SHOW YOUR THINKING

Test practice

16. "7 more than 4 times 3" is written —

□ A. $4 \times 3 + 7$	□ B. $7 \times 4 + 3$
□ C. $7 + 4 - 3$	□ D. $4 + 3 \times 7$

17. "The difference of 12 and 5, tripled" is written —

□ A. $3 \times 12 - 5$
□ B. $3 \times (12 - 5)$
□ C. $12 - 5 \times 3$
□ D. $12 \times 3 - 5$

18. An expression is different from an equation because it has no —

□ A. operations	□ B. numbers
□ C. equals sign	□ D. parentheses

Check and revise

CHECK YOUR MATHEMATICS

Keep subtraction and division in the correct order.

Every part answered / Work shown / Units labeled when needed

HOW DID IT GO?

I can do this:
Independently / With a hint / With help

Question to revisit: _____

One correction or question I want to discuss: _____

Check one result with a model, an inverse operation, or substitution. Explain why the values agree.
Sentence Frame: "I know this because..."