

# Writing and Interpreting Numerical Expressions




Grade 5 Math • Section 3.3


Name: \_\_\_\_\_


Date: \_\_\_\_\_


Score: \_\_\_\_\_ / 12

## Quick Review and Helpful Hints

-  **Writing expressions:** Translate word phrases into math. “Add 5 and 7, then multiply by 2”  $\rightarrow (5 + 7) \times 2$ .
-  **Interpreting expressions:** Describe what the expression represents **without** evaluating.  $3 \times (12 + 8)$  means “three times the sum of 12 and 8.”
-  Use grouping symbols when you need to change the default order of operations.

 **Example:** Write an expression for: “Subtract 4 from 10, then divide by 3.”

 “Subtract 4 from 10” gives  $(10 - 4)$ . “Then divide by 3” means  $(10 - 4) \div 3$ . The parentheses make sure we subtract before dividing.

 **Answer:**  $(10 - 4) \div 3$

## Practice Problems

Write a numerical expression for each phrase, or describe the expression in words.

- |  |       |   |       |
|--|-------|---|-------|
| 1. Add 8 and 12, then multiply by 3.         | _____ | 6. Divide 100 by 5, then add 13.                          | _____ |
| 2. Subtract 6 from 20, then divide by 7.     | _____ | 7. Double the difference of 18 and 11.                    | _____ |
| 3. Multiply 4 by the sum of 9 and 5.         | _____ | 8. Describe in words: $36 \div (2 + 4)$                   | _____ |
| 4. Describe in words: $(15 - 7) \times 4$    | _____ | 9. Multiply 6 by 7, then subtract the product of 3 and 4. | _____ |
| 5. Describe in words: $2 \times (8 + 3) - 6$ | _____ | 10. Half of the sum of 24 and 16.                         | _____ |

## Word Problems

11. Sam earns \$12 per hour and works 8 hours on Saturday and 5 hours on Sunday. Write a single numerical expression for his total pay, then evaluate it. \_\_\_\_\_
12. A store sells T-shirts for \$15 each and hats for \$9 each. Write an expression for the cost of buying 4 T-shirts and 3 hats. Evaluate the expression. \_\_\_\_\_



## Answer Keys

1.  $(8 + 12) \times 3 = 60$

2.  $(20 - 6) \div 7 = 2$

3.  $4 \times (9 + 5) = 56$

4. subtract 7 from 15, then multiply by 4

5. multiply 2 by  $(8 + 3)$ , then subtract 6

6.  $100 \div 5 + 13 = 33$

7.  $2(18 - 11) = 14$

8. divide 36 by the sum of 2 and 4

9.  $6 \times 7 - 3 \times 4 = 30$

10.  $(24 + 16) \div 2 = 20$

11.  $12(8 + 5) = 156$

12.  $4(15) + 3(9) = 87$

### Step-by-Step Explanations

1. Start with the main idea. For writing and interpreting numerical expressions, first add 8 and 12, then multiply the sum by 3. Translate the words in the same order the action happens.

2. Keep the work tidy. For writing and interpreting numerical expressions, subtract first:  $20 - 6 = 14$ , then  $14 \div 7 = 2$ . Parentheses are useful when the words say to do something first.

3. Look at what the numbers mean. For writing and interpreting numerical expressions, the words say to multiply 4 by the sum  $9 + 5$ . After writing the expression, evaluate it to make sure it matches the story.

4. Use the setup first. For writing and interpreting numerical expressions, the parentheses tell us to find  $15 - 7$  first. Translate the words in the same order the action happens.

5. Check the size of the answer. For writing and interpreting numerical expressions, do the sum in parentheses before multiplying by 2. Parentheses are useful when the words say to do something first.

6. Match the operation to the words. For writing and interpreting numerical expressions, divide first:  $100 \div 5 = 20$ , then add 13. After writing the expression, evaluate it to make sure it matches the story.

7. Write the important values first. For writing and interpreting numerical expressions, difference means subtract, then double the result. Translate the words in the same order the action happens.

8. Follow the pattern carefully. For writing and interpreting numerical expressions, the denominator is the grouped sum  $2 + 4$ . Parentheses are useful when the words say to do something first.

9. Start with the main idea. For writing and interpreting numerical expressions, compute both products, then subtract:  $42 - 12 = 30$ . After writing the expression, evaluate it to make sure it matches the story.

10. Keep the work tidy. For writing and interpreting numerical expressions, half of a sum means divide the sum by 2. Translate the words in the same order the action happens.

11. Look at what the numbers mean. For writing and interpreting numerical expressions, total hours are  $8 + 5 = 13$ , so pay is  $12 \times 13 = 156$ . Parentheses are useful when the words say to do something first.

12. Use the setup first. For writing and interpreting numerical expressions, four shirts cost 60 and three hats cost 27, for 87 total. After writing the expression, evaluate it to make sure it matches the story.



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