

Substitute and Solve

Part 1 Practice, Part 2 Apply, Part 3 Challenge

GRADE 6 • NY-6.EE.2.c

NY-6.EE.2.c "Evaluate expressions given specific values for their variables. Include expressions that arise from formulas in real-world problems. Perform arithmetic operations, including those involving whole-number exponents..."

NAME _____

DATE _____

ORDER MATTERS

First replace x with its given value. Then simplify in this order: parentheses, exponents, multiplication or division from left to right, and addition or subtraction from left to right.

WORKED EXAMPLE

Evaluate $11 + 2(x - 5)$ when $x = 9$.

1. Replace x with 9: $11 + 2(9 - 5)$
2. Simplify parentheses: $11 + 2(4)$
3. Multiply: $11 + 8 = 19$

Answer: 19

PRACTICE 6 problems

1 Evaluate $3x + 7$ when $x = 6$.

ANSWER _____

2 Evaluate $21 - 3x$ when $x = 6$.

ANSWER _____

3 Evaluate $(x + 10) \cdot 3$ when $x = 7$.

ANSWER _____

4 Evaluate $6x^2 - 1$ when $x = 3$.

ANSWER _____

5 Evaluate $28 / x + 12$ when $x = 7$.

ANSWER _____

6 Evaluate $x^2 + 15 / 3$ when $x = 6$.

ANSWER _____

APPLY IT Show your work

- 1** At a school music challenge, an artist earns 20 bonus points plus 13 points for each playlist save. The score is $13x + 20$, where x is the number of playlist saves. Find the score when $x = 3$.

WORK SPACE

ANSWER _____

- 2** A student makes a square tile for a game board. Its area, in square centimeters, is x^2 , where x is the side length in centimeters. Find the area when $x = 14$.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Evaluate $(x + 12) / 3 + x^2$ when $x = 6$. Show the order of operations in your work.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Evaluate $3x + 7$ when $x = 6$.	25
2	Evaluate $21 - 3x$ when $x = 6$.	3
3	Evaluate $(x + 10) \cdot 3$ when $x = 7$.	51
4	Evaluate $6x^2 - 1$ when $x = 3$.	53
5	Evaluate $28 / x + 12$ when $x = 7$.	16
6	Evaluate $x^2 + 15 / 3$ when $x = 6$.	41

PART 2 • APPLY IT

1. **59 points** Substitute 3 for x : $13(3) + 20$. Multiply first, then add: $39 + 20 = 59$.
2. **196 cm²** Substitute 14 for x : 14^2 . Multiply 14 by 14 to get 196.

CHALLENGE

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Accept equivalent intermediate expressions that use the correct order of operations. For the challenge, students should substitute first, simplify the parentheses and exponent, then divide and add.