LESSON MAKER PRO

Expression Quest

Substitute values and follow the order of operations.

GRADE 6 · 6.EE.2c

6.EE.2c "Write, read, and evaluate expressions in which letters stand for numbers. Use Order of Operations to evaluate algebraic expressions using positive rational numbers and whole-number exponents..."

NAME _____ DATE _____

SUBSTITUTE, THEN SOLVE

Replace each letter with its given number. Work inside parentheses and evaluate exponents first, then multiply or divide, and finally add or subtract.

WORKED EXAMPLE

Evaluate $12 + x^3 \div 6$ when $x = 3$.

1. Substitute 3 for x: $12 + 3^3 \div 6$
2. Evaluate the exponent: $12 + 27 \div 6$
3. Divide: 12 + 4 1/2
4. Add: 16 1/2

Answer: 16 1/2

PRACTICE 6 problems

1 Evaluate $4x + 1$ when $x = 5/2$.

ANSWER _____

2 Evaluate $x^2 + 5$ when $x = 1/2$.

ANSWER _____

3 Evaluate $15 - 10 \div x$ when $x = 5$.

ANSWER _____

4 Evaluate $(x + 1)^2 \div 10$ when $x = 2$.

ANSWER _____

5 Evaluate $0.5x^2 + 1.25$ when $x = 4$.

ANSWER _____

6 Evaluate $28 \div (x + 1) + x^2$ when $x = 1$.

ANSWER _____

APPLY IT Show your work

1 A club orders custom bookmarks. The total cost in dollars is $C = 2.5n + 4$, where n is the number of bookmarks. Find C when $n = 8$.

WORK SPACE

ANSWER _____

2 An arcade awards points using $P = 10r^2 + 5t$, where r is the number of rounds won and t is the number of tokens found. Find P when $r = 4$ and $t = 2$.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student evaluates $18 - 2x^2$ when $x = 2$ by calculating $(18 - 2) \times 2^2 = 64$. Find the correct value. Explain what must happen before subtraction.

WORK SPACE AND ANSWER

ANSWER KEY

Expression Quest

GRADE 6 · 6.EE.2c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Evaluate $4x + 1$ when $x = 5/2$.	**11**
2	Evaluate $x^2 + 5$ when $x = 1/2$.	**5 1/4**
3	Evaluate $15 - 10 \div x$ when $x = 5$.	**13**
4	Evaluate $(x + 1)^2 \div 10$ when $x = 2$.	**9/10**
5	Evaluate $0.5x^2 + 1.25$ when $x = 4$.	**9.25**
6	Evaluate $28 \div (x + 1) + x^2$ when $x = 1$.	**15**

PART 2 · APPLY IT

1. **$24** Substitute 8 for n: $C = 2.5(8) + 4 = 20 + 4 = 24$.
2. **170 points** Substitute both values and evaluate the exponent first: $P = 10(4^2) + 5(2) = 160 + 10 = 170$.

CHALLENGE

10. Square 2 to get 4, then multiply 2 × 4 to get 8. Subtract last: 18 - 8 = 10.

Accept equivalent fractions or decimals for numerical answers. In the challenge, the explanation must place the exponent and multiplication before subtraction.