LESSON MAKER PRO

Expression Quest

Write expressions, name their parts, and find their values.

GRADE 6 · MT.6.EE.2

MT.6.EE.2 "Write, read, and evaluate expressions with variables by: Writing expressions that record operations with numbers and with variables, Identifying parts of an expression using mathematical terms (sum, product, difference, quotient, term..."

NAME _____ DATE _____

BUILD AND EVALUATE

An expression records operations with numbers and variables. To find its value, replace each variable with the given number, then follow the order of operations: parentheses, exponents, multiplication and division, then addition and subtraction.

WORKED EXAMPLE

Find the value of $7x + 11$ when $x = 17$.

1. Replace x with 17: 7(17) + 11.
2. Multiply: 119 + 11.
3. Add: 130.

Answer: 130

PRACTICE 6 problems

1 Write an expression for five more than three times x.

ANSWER _____

2 Find the value of 6x - 2 when x = 8.

ANSWER _____

3 Find the value of $x^2 + 9$ when x = 2.

ANSWER _____

4 In 12x + 1, name the coefficient of x and list the two terms.

ANSWER _____

_____

5 Find the value of (x + 10)/3 when x = 5.

ANSWER _____

6 Write an expression for twice the difference between x and 6.

ANSWER _____

APPLY IT Show your work

1 An arcade charges 8 tokens to enter and 3 tokens for each game. Write an expression for the total tokens needed to play x games. Then find the total for 6 games.

WORK SPACE

ANSWER _____

2 In a video game, a player earns x^2 points in a bonus round and 2x points in a speed round. Write an expression for the total points. Then find the total when x = 5.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Find the value of $3(x + 2)^2$ and $(3x + 2)^2$ when x = 3. Explain why the values differ.

WORK SPACE AND ANSWER

ANSWER KEY

Expression Quest

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Write an expression for five more than three times x.	**3x + 5**
2	Find the value of 6x - 2 when x = 8.	**46**
3	Find the value of x^2 + 9 when x = 2.	**13**
4	In 12x + 1, name the coefficient of x and list the two terms.	**Coefficient: 12. Terms: 12x and 1.**
5	Find the value of (x + 10)/3 when x = 5.	**5**
6	Write an expression for twice the difference between x and 6.	**2(x - 6)**

PART 2 · APPLY IT

1. **8 + 3x; 26 tokens** Add the entry cost to the cost of x games. For 6 games, 8 + 3(6) = 26.
2. **x^2 + 2x; 35 points** Add the points from both rounds. When x = 5, 5^2 + 2(5) = 25 + 10 = 35.

CHALLENGE

$3(x + 2)^2 = 75$, and $(3x + 2)^2 = 121$. The first expression squares x + 2 and then multiplies by 3. The second squares the entire sum 3x + 2.

Accept equivalent expressions in Problems 1 and 6 and in the word problems. For the challenge, accept any explanation that correctly identifies what is squared in each expression.