

Substitute and Solve

Use values and order of operations to evaluate expressions.

GRADE 6 • 6.EE.A.2c

CCSS.Math.Content.6.EE.A.2c "Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents..."

NAME _____

DATE _____

EVALUATE IN ORDER

To evaluate an expression, replace each variable with its given value. Then use the order of operations: evaluate exponents first, multiply or divide from left to right, then add or subtract from left to right.

WORKED EXAMPLE

Evaluate $7m^2 - 5$ when $m = 3$.

1. Substitute $m = 3$: $7(3)^2 - 5$
2. Evaluate the exponent: $7 \times 9 - 5$
3. Multiply, then subtract: $63 - 5 = 58$

Answer: 58

PRACTICE 6 problems

1 Evaluate $8 + 2x$ when $x = 6$.

ANSWER _____

2 Evaluate $y^2 + 4$ when $y = 9$.

ANSWER _____

3 Evaluate $18/a + 6$ when $a = 2$.

ANSWER _____

4 Evaluate $2b^2 - 8$ when $b = 4$.

ANSWER _____

5 Evaluate $1/2c^2 + 1$ when $c = 8$.

ANSWER _____

6 Evaluate $6 + d^2/4$ when $d = 10$.

ANSWER _____

APPLY IT Show your work

- 1** An esports club uses the score formula $S = 4w^2 + 12$, where w is the number of wins. What is the score when $w = 6$?

WORK SPACE

ANSWER _____

- 2** A cube-shaped case for a miniature game set has side length $s = \frac{1}{2}$ foot. Use $V = s^3$ and $A = 6s^2$ to find its volume and surface area.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A rectangular poster has area $A = lw$. Its length is $x + 4$ cm, and its width is $2x$ cm. Find the area when $x = 8$.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Evaluate $8 + 2x$ when $x = 6$.	20
2	Evaluate $y^2 + 4$ when $y = 9$.	85
3	Evaluate $18/a + 6$ when $a = 2$.	15
4	Evaluate $2b^2 - 8$ when $b = 4$.	24
5	Evaluate $1/2c^2 + 1$ when $c = 8$.	33
6	Evaluate $6 + d^2/4$ when $d = 10$.	31

PART 2 • APPLY IT

- 156 points** Substitute 6 for w : $S = 4(6)^2 + 12$. Then $4 \times 36 + 12 = 156$.
- Volume = $1/8$ cubic foot; surface area = $3/2$ square feet** $V = (1/2)^3 = 1/8$. $A = 6(1/2)^2 = 6 \times 1/4 = 3/2$.

CHALLENGE

192 cm²

Accept equivalent fraction forms for the cube surface area, such as $1 \frac{1}{2}$ square feet. For the challenge, accept correct work that substitutes $x = 8$ before multiplying the length and width.