LESSON MAKER PRO

Value Quest

Substitute values, then use the order of operations.

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..."

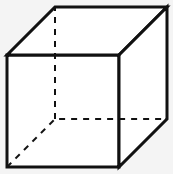
NAME _____ DATE _____

SUBSTITUTE AND EVALUATE

Replace x with its given value before you calculate. Evaluate exponents first, then multiply or divide from left to right, and finally add or subtract from left to right.

WORKED EXAMPLE

Each edge of the cube is $x = 3/4$ unit. Its volume is $V = x^3$. Find the volume.



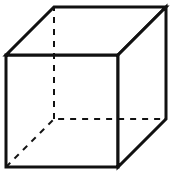
3/4 unit

1. $V = x^3 = (3/4)^3$.
2. $(3/4)^3 = (3/4) \times (3/4) \times (3/4)$.
3. Multiply the numerators and denominators: 27/64.

Answer: 27/64 cubic units

PRACTICE 6 problems

1 Each edge of the cube is $x = 2$ cm. Its surface area is $A = 6x^2$. Find the surface area.

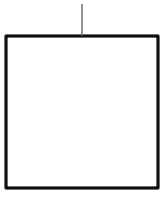


2 cm

ANSWER _____

2 The square is shown. Its area is $A = x^2$. Find the area.

5 cm



ANSWER _____

3 Evaluate $7x^2 + 6$ when $x = 2$.

ANSWER _____

4 Evaluate $28/x + 2x$ when $x = 7$.

ANSWER _____

5 Evaluate $19 - x^2 + 2$ when $x = 5$.

ANSWER _____

6 Evaluate $8x^2 - 5x + 7$ when $x = 2$.

ANSWER _____

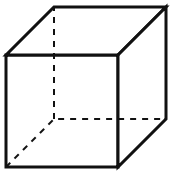
APPLY IT Show your work

1 In a game, your total points are found with $12x + 7$, where x is the number of bonus tokens you collect. You collect 6 bonus tokens. How many total points do you have?

WORK SPACE

ANSWER _____

2 A maker club paints every outside face of a cube-shaped display with edge length $x = 5$ in. The surface area is $6x^2$. How much area will they paint?



5 in

ANSWER _____

CHALLENGE One step up

Evaluate $35/x + 5x^2 - 8$ when $x = 5$. Then explain the order in which you do the operations.

WORK SPACE AND ANSWER

ANSWER KEY # Value Quest

GRADE 6 · 6.EE.A.2c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Each edge of the cube is x = 2 cm. Its surface area is $A = 6x^2$. Find the surface area.	**24 cm^2**
2	The square is shown. Its area is $A = x^2$. Find the area.	**25 cm^2**
3	Evaluate $7x^2 + 6$ when x = 2.	**34**
4	Evaluate $28/x + 2x$ when x = 7.	**18**
5	Evaluate $19 - x^2 + 2$ when x = 5.	**-4**
6	Evaluate $8x^2 - 5x + 7$ when x = 2.	**29**

PART 2 · APPLY IT

1. **79 points** Substitute 6 for x: 12(6) + 7. Multiply first, then add: 72 + 7 = 79.
2. **150 in^2** Substitute 5 for x: $6(5^2)$. Evaluate the exponent, then multiply: 6(25) = 150.

CHALLENGE

124. Substitute 5 for x, evaluate the exponent, multiply and divide, then add and subtract from left to right.

Accept equivalent multiplication notation in student work. Require correct order of operations after substitution, including evaluating exponents before multiplication or division.