

Writing, Evaluating and Simplifying Algebraic Expressions

Grade 6 math · Test Answer Key · Standards: 6.EE.A.2, 6.EE.A.3, 6.EE.A.4

Use this answer key to score the test. Each solution shows the substitution or the rewriting step, and the scoring notes explain how points are awarded. Give partial credit for correct reasoning.

Standards: 6.EE.A.2, 6.EE.A.3, 6.EE.A.4 · **Level:** Grade 6

Question 1 Parts of an expression (2 points)

(a) **8**. (b) **5**.

Scoring: 1 point per part.

Question 2 Writing expressions (2 points)

(a) 4 times n is $4n$, and 6 less is **$4n - 6$** .

(b) $\frac{w}{9}$ (that is, $w \div 9$).

Scoring: 1 point per part.

Question 3 Evaluate with a power (2 points)

$2 \times 6^2 - 9 = 2 \times 36 - 9 = 72 - 9 = \mathbf{63}$.

Scoring: 1 point for 36, 1 point for 63.

Question 4 Two variables (2 points)

$5 \times 6 - 2 \times 7 = 30 - 14 = \mathbf{16}$.

Scoring: 1 point for the substitution, 1 point for 16.

Question 5 Cube formulas (3 points)

(a) $7 \times 7 \times 7 = \mathbf{343}$ **cubic centimeters**.

(b) $7^2 = 49$, and $6 \times 49 = \mathbf{294}$ **square centimeters**.

Scoring: 1 point for (a); 1 point for 49 and 1 point for 294.

Question 6 Distributive property (2 points)

(a) $5x + 30$.

(b) $7a + 2a = 9a$ and $3 - 1 = 2$: $9a + 2$.

Scoring: 1 point per part.

Question 7 Factoring (2 points)

$\text{GCF}(18, 24) = 6$; $18x = 6 \times 3x$ and $24 = 6 \times 4$.

6	$6 \times 3x = 18x$	$6 \times 4 = 24$
	3x	4

$$18x + 24 = 6(3x + 4).$$

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Scoring: 1 point for the GCF 6, 1 point for the factored form.

Question 8 Scooter rental (3 points)

(a) $5 + 0.75m$.

(b) $5 + 0.75 \times 20 = 5 + 15 = \$20$.

(c) $5 + 0.75 \times 12 = 5 + 9 = \$14$.

Scoring: 1 point per part.

Question 9 Equivalent or not (2 points)

(a) $2(4 + 5) = 18$, but $2 \times 4 + 5 = 13$.

(b) **No**. The 2 must multiply both terms: $2(n + 5) = 2n + 10$.

Scoring: 1 point per part.