

Algebra 1 · Interpreting Expressions and Real Numbers · Test Answer Key

Common Core A-SSE.A.1a, A-SSE.A.1b, N-RN.B.3 · mathovore.fr

Use this key to grade the test. Each solution lists the work and a scoring guide, so partial credit can be given when the setup is right but a calculation slips. The total possible score is 20 points.

Algebra 1 Common Core: A-SSE.A.1a · A-SSE.A.1b · N-RN.B.3

Question 1: Anatomy of an expression (3 points)

- a. $4x^3$, $-6x^2$, x and -9 .
- b. The coefficient of x^2 is -6 ; the coefficient of x is 1 .
- c. The constant term is -9 .

Scoring: 1 point per part. In part (a) all four terms with signs are required; in part (b) both coefficients must be correct.

Question 2: Factors of a term (2 points)

$12ab^2c = 12 \cdot a \cdot b \cdot b \cdot c$. The coefficient is 12.

Scoring: 1 point for the factored product, 1 point for the coefficient.

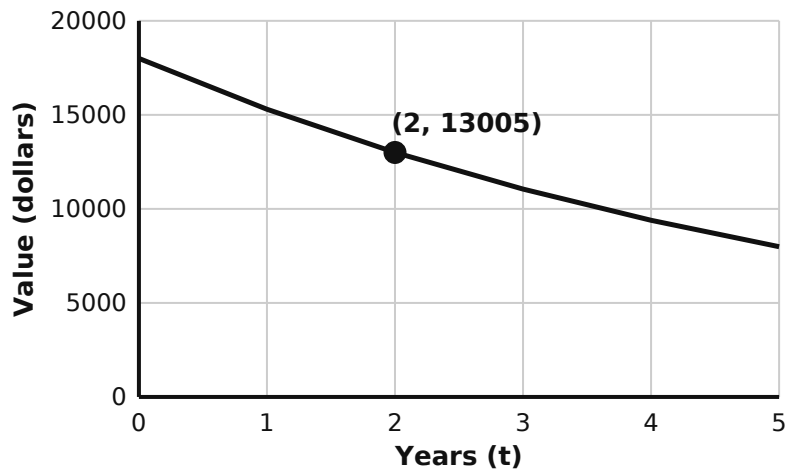
Question 3: Interpreting an account (3 points)

- a. Starting amount \$2,500; growth rate 6% per year.
- b. $2500(1.06)^3 = 2500 \times 1.191016 \approx \$2,977.54$.
- c. Each year the balance is multiplied by 1.06, so it becomes 106% of the previous year's balance.

Scoring: 1 point per part; part (a) needs both the amount and the rate.

Question 4: Interpreting depreciation (3 points)

- a. 18000 is the starting value of the van (when $t = 0$).
- b. $0.85 = 1 - 0.15$, so the value decreases by 15% each year.
- c. $18000(0.85)^2 = 18000 \times 0.7225 = 13005$, so \$13,005.



The point for 2 years.

Scoring: 1 point per part.

Question 5: Classify and justify (3 points)

- Irrational: a rational plus an irrational is irrational.
- Irrational: a nonzero rational times an irrational is irrational.
- $\sqrt{3} \cdot \sqrt{12} = \sqrt{36} = 6$, rational.

Scoring: for each part, award the point only when the classification and a valid reason are both given.

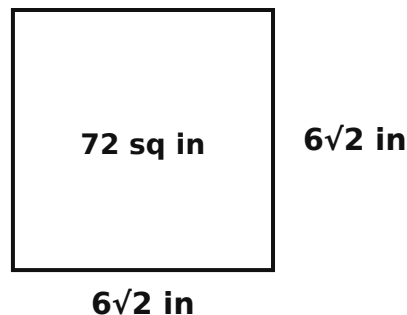
Question 6: Sum of irrationals (2 points)

No. For example, $(3+\sqrt{7})+(5-\sqrt{7})=8$, which is rational, because the irrational parts cancel.

Scoring: 1 point for no, 1 point for a correct example with its sum.

Question 7: A square's perimeter (2 points)

- $\sqrt{72} = \sqrt{36 \cdot 2} = 6\sqrt{2}$ in.
- $4 \cdot 6\sqrt{2} = 24\sqrt{2} \approx 33.94$ in, irrational.



Side length $6\sqrt{2}$ inches.

Scoring: 1 point per part.

Question 8: Total cost expression (2 points)

The terms are $1.07p$ and 4.95 . The factor 1.07 means the price plus 7% tax; 4.95 is a flat shipping charge.

$$T = 1.07(30) + 4.95 = 32.10 + 4.95 = 37.05, \text{ so } \$37.05.$$

Scoring: 1 point for the terms and the two interpretations, 1 point for \$37.05.

Total
20 points