

Algebraic Expressions and Properties of Real Numbers: math test, Grade 9 – download the PDF

Suggested time: 45 minutes. Out of 20 points. Calculator allowed only when the problem says so.

1 Order of operations and evaluating

/ 4 pts

- Compute $7 + 2 \cdot (9 - 4)^2 \div 5$. (2 pts)
- Evaluate $2x^2 - 3xy + y$ for $x = -3$ and $y = 4$. (2 pts)

2 Properties of real numbers

/ 3 pts

Name the property used in each statement.

- $9 + (-9) = 0$
- $(2 \cdot 7) \cdot 5 = 2 \cdot (7 \cdot 5)$
- $6(m - 2) = 6m - 12$

3 Simplifying

/ 4 pts

Simplify each expression.

- $8p - 3 + 2p + 11 - p$ (2 pts)
- $5(2y + 1) - 3(y - 4)$ (2 pts)

4 Classifying real numbers

/ 3 pts

For each number, list every set it belongs to among natural, whole, integer, rational, and irrational.

a. $\sqrt{36}$

b. -4.5

c. $\sqrt{30}$

5 Translating and evaluating

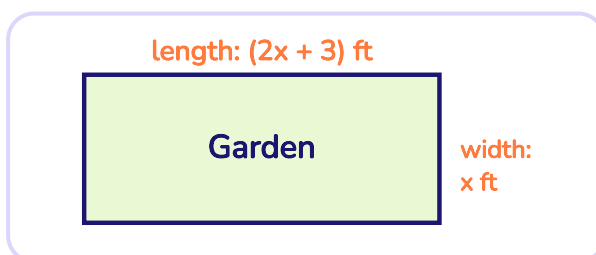
/ 3 pts

- a. Write an expression for “three more than the quotient of a number n and 5”. (1 pt)
- b. Write an expression for “twice the difference of a number n and 8”. (1 pt)
- c. A taxi charges \$4 plus \$2.50 per mile. Write an expression for a ride of m miles and evaluate it for 8 miles. (1 pt)

6 The garden

/ 3 pts

A rectangular garden has length $(2x + 3)$ feet and width x feet.



- a. Write a simplified expression for the perimeter. (1 pt)
- b. Write a simplified expression for the area. (1 pt)
- c. Find both when $x = 5$. (1 pt)



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