

Numerical and Algebraic Expressions: math test, Grade 6 – download the PDF

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

1 Exponents and order of operations

/ 4 pts

Calculators are not allowed. Find the value of each expression.

- a. 5^3
- b. $40 - 2^4$
- c. $3 \cdot (10 - 4)^2$
- d. $100 \div 5^2 + 9$

2 Writing expressions

/ 4 pts

Write an algebraic expression for each phrase.

- a. 12 less than x
- b. the product of 6 and the sum of y and 2
- c. tickets cost 9 dollars each (t tickets) plus a 5-dollar fee
- d. the quotient of n and 4, increased by 1

3 Evaluating expressions

/ 3 pts

Evaluate each expression when $x = 4$ and $y = 2$.

- a. $5x - y$
- b. $x^2 + 3y$
- c. $2(x + y)$

4 Parts of an expression

/ 2 pts

Consider $8m + 5n + 11$.

- a. List its terms.
- b. Give the coefficient of n and the constant term.

5 Distributive property and equivalence

/ 4 pts

- a. Expand $5(2x + 3)$.
- b. Rewrite $16y + 20$ as a product using the GCF.
- c. Are $3(x + 4)$ and $3x + 4$ equivalent? Test $x = 2$ and explain.

6 Simplifying and a rectangle

/ 3 pts

- a. Simplify $9a + 4 + 2a - 3$.
- b. A rectangle has width 4 inches and length $x + 6$ inches. Write its perimeter as an expression and simplify it.



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