

Exponent Rules and Polynomials: math test, Grade 9

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

1 Exponent rules

/ 4 pts

Simplify. In part d, write the answer with positive exponents.

a. $n^8 \cdot n^5$

b. $(4b^3)^2$

c. $\frac{28p^9}{7p^4}$

d. $3k^{-4}m$

2 Scientific notation

/ 3 pts

a. Write 0.000062 in scientific notation.

b. Write 83,000,000 in scientific notation.

c. Compute $(2.5 \times 10^6)(4 \times 10^2)$ and give the result in scientific notation.

3 Classifying a polynomial

/ 3 pts

Consider $4x - 7 + 2x^3$.

- Write it in standard form.
- Give its degree and its leading coefficient.
- Is it a monomial, a binomial or a trinomial?

4 Adding and subtracting

/ 3 pts

Let $A = 5x^2 - 2x + 1$ and $B = x^2 + 6x - 4$. Compute

- $A + B$
- $A - B$

5 Multiplying polynomials

/ 4 pts

Expand and simplify.

- $3x(2x^2 + x - 6)$
- $(x + 8)(x - 3)$
- $(x - 1)(x^2 + 2x + 3)$

6 Special products

/ 3 pts

Expand using a special product.

- $(x + 10)^2$
- $(3x - 4)^2$
- $(6x + 5)(6x - 5)$



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