

Exponents and Scientific Notation: math test, Grade 8 – download the PDF

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

1 Evaluating powers

/ 4 pts

Evaluate: (a) 2^7 ; (b) $(-3)^3$; (c) 6^{-2} ; (d) 9^0 .

2 Rules of exponents

/ 4 pts

Write each expression as a single power or in simplest form: (a) $3^5 \times 3^6$; (b) $\frac{10^{12}}{10^7}$; (c) $(7^2)^5$; (d) $(2y^3)^4$.

3 Converting numbers

/ 3 pts

(a) Write **3,720,000** in scientific notation. (b) Write **0.0000805** in scientific notation. (c) Write 6.1×10^{-3} in standard form.

4 Operations

/ 4 pts

Compute and give the result in scientific notation: (a) $(1.2 \times 10^4)(5 \times 10^3)$; (b) $\frac{9 \times 10^8}{3 \times 10^2}$; (c) $5.5 \times 10^6 + 2.5 \times 10^5$; (d) $(7 \times 10^{-3})(4 \times 10^{-5})$.

5 Memory cards

/ 3 pts

A memory card holds 6.4×10^{10} bytes. One photo takes about 4×10^6 bytes. How many photos fit on the card? (*Calculator not needed.*)

6 Hair and bacteria

/ 2 pts

A hair is about 8×10^{-5} m wide and a bacterium is about 2×10^{-6} m wide. How many times wider is the hair?



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