

Grade 8 - Scientific Notation - Test Answer Key

Common Core 8.EE.A.3, 8.EE.A.4 · maths-pdf.fr/en/

Use this answer key to score the scientific notation test out of 20 points. Each solution shows the full work and a scoring guide, so partial credit can be given fairly when a student shows correct steps but makes an arithmetic slip.

Grade 8 · Common Core State Standards: **8.EE.A.3, 8.EE.A.4**

Question 1 - Write in scientific notation [2 pts]

- a. 5.8×10^7
- b. 4.7×10^{-6}

Scoring: 1 point each.

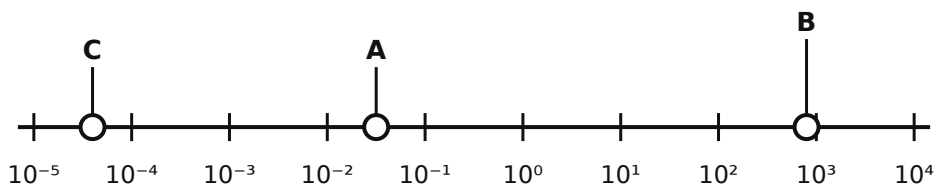
Question 2 - Write in standard form [2 pts]

- a. 30,600
- b. 0.00008

Scoring: 1 point each.

Question 3 - Compare sizes [2 pts]

Exponents: -5, -2, 2.



The order is C, A, B.

4×10^{-5} , 3×10^{-2} , 8×10^2

Scoring: 2 points for the correct order; 1 point if one value is misplaced.

Question 4 - Multiply and divide [3 pts]

a. $24 \times 10^8 = 2.4 \times 10^9$

b. 3×10^5

Scoring: Part a: 1 point for 24×10^8 , 1 point for 2.4×10^9 . Part b: 1 point.

Question 5 - Add [2 pts]

$$3.1 \times 10^4 = 0.31 \times 10^5.$$

$$2.4 + 0.31 = 2.71.$$

$$2.71 \times 10^5$$

Scoring: 1 point for matching the exponents. 1 point for the sum.

Question 6 - Sun and Jupiter [3 pts]

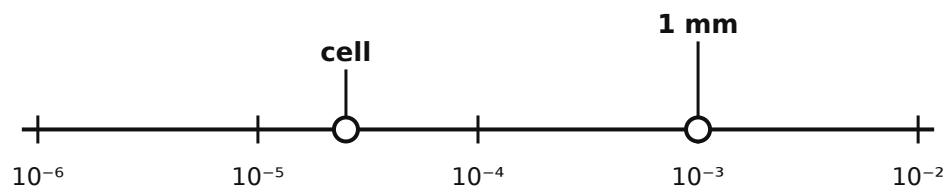
$$4.8 \times 10^8 = 48 \times 10^7.$$

$$48 \times 10^7 - 9.3 \times 10^7 = 38.7 \times 10^7 = 3.87 \times 10^8.$$

$$3.87 \times 10^8 \text{ miles}$$

Scoring: 1 point for matching exponents, 1 point for 38.7, 1 point for scientific notation.

Question 7 - Cells across a millimeter [3 pts]



Many cells fit in 1 mm.

$$\frac{10^{-3}}{2.5 \times 10^{-5}} = 0.4 \times 10^2 = 4 \times 10^1.$$

40 cells

Scoring: 1 point for setting up a quotient, 1 point for the exponent work, 1 point for 40.

Question 8 - Explain [3 pts]

No, the front number 0.5 is less than 1. $0.5 \times 10^6 = 5 \times 10^5$.

Standard form: 500,000.

Scoring: 1 point for the explanation, 1 point for 5×10^5 , 1 point for 500,000.

Total
20 points