

Grade 8 · Scientific Notation · Quiz

Common Core 8.EE.A.3, 8.EE.A.4 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

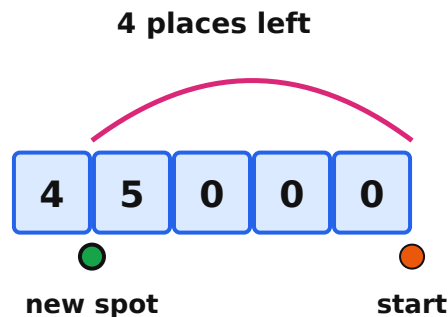
Ten multiple-choice questions check scientific notation: converting between standard form and scientific notation, comparing sizes, reading calculator displays, and multiplying and dividing. Some questions use a figure. Pick the one correct answer, then read the explanation. Aim for 8 out of 10.

Grade 8 Common Core: 8.EE.A.3 · 8.EE.A.4

Questions

Question 1

Which is 45,000 in scientific notation?

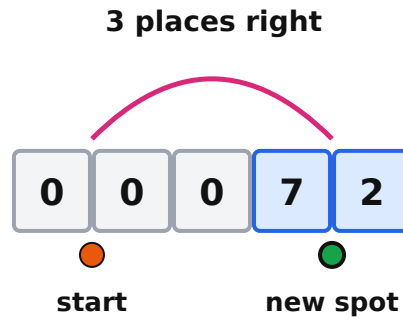


The point moves 4 places left.

- A. 4.5×10^3
- B. 45×10^3
- C. 0.45×10^5
- D. 4.5×10^4

Question 2

Which is 0.0072 in scientific notation?



The point moves 3 places right.

- A. 7.2×10^{-3}
- B. 7.2×10^3
- C. 7.2×10^{-2}
- D. 7.2×10^{-4}

Question 3

What is 6.03×10^5 in standard form?

- A. 60,300
- B. 6,030,000
- C. 603,000
- D. 0.0000603

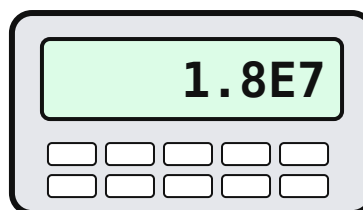
Question 4

What is 2.5×10^{-4} in standard form?

- A. 0.0025
- B. 0.000025
- C. 250,000
- D. 0.00025

Question 5

A calculator display is shown. What number does it show?



The display reads 1.8E7.

- A. 18,000,000

- B. 1,800,000
- C. 180,000,000
- D. 0.00000018

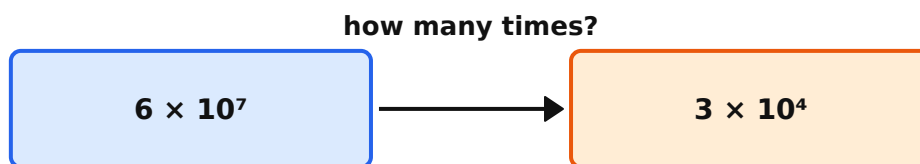
Question 6

Which number is the greatest?

- A. 9.9×10^{-2}
- B. 5.0×10^{-2}
- C. 8.7×10^{-3}
- D. 1.2×10^{-1}

Question 7

How many times as large is the first number as the second?



Compare the two numbers.

- A. 2×10^4
- B. 2×10^3
- C. 1.8×10^{12}
- D. 2×10^{11}

Question 8

What is $(2 \times 10^5)(4 \times 10^3)$?

- A. 8×10^8
- B. 8×10^{15}
- C. 6×10^8
- D. 8×10^2

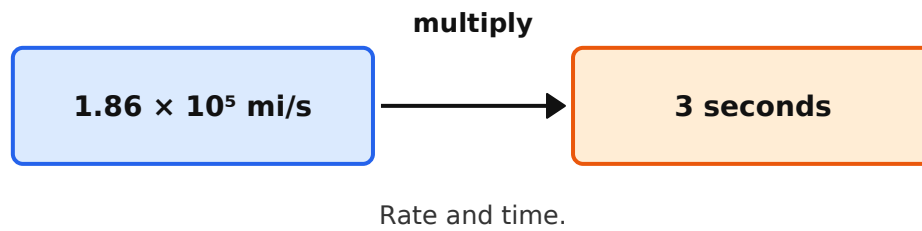
Question 9

What is $\frac{9 \times 10^6}{3 \times 10^2}$?

- A. 3×10^8
- B. 3×10^4
- C. 6×10^4
- D. 3×10^{12}

Question 10

Light travels 1.86×10^5 miles each second. How far does it go in 3 seconds?



- A. 5.58×10^4
- B. 5.58×10^6
- C. 5.58×10^5
- D. 5.58×10^8

Answer key

1. **D** – Move the point 4 places left to get 4.5, so the exponent is 4. The forms with 45 or 0.45 do not have a coefficient from 1 up to 10.
2. **A** – The point moves 3 places right, and the number is less than 1, so the exponent is -3 . A positive exponent makes a large number.
3. **C** – Move the point 5 places right: 6.03 becomes 603,000. Moving 4 places gives 60,300, and 6 places gives 6,030,000.
4. **D** – The exponent -4 moves the point 4 places left: 2.5 becomes 0.00025.
5. **A** – $1.8E7$ means 1.8×10^7 . Move the point 7 places right to get 18,000,000.
6. **D** – Compare exponents first: -1 is the greatest. The value 0.12 beats 0.099, even though 9.9 has the bigger coefficient.
7. **B** – Divide: $6 \div 3 = 2$ and $7 - 4 = 3$. Multiplying gives 1.8×10^{12} , and adding the exponents gives 2×10^{11} .
8. **A** – Multiply the coefficients (8) and add the exponents ($5 + 3 = 8$). Multiplying the exponents gives 15.
9. **B** – Divide the coefficients (3) and subtract the exponents ($6 - 2 = 4$). Adding the exponents gives 8.
10. **C** – Multiply: $1.86 \cdot 3 = 5.58$, and the exponent stays 5. Check: $186,000 \cdot 3 = 558,000$.

Remember:

- Standards 8.EE.A.3 and 8.EE.A.4: write, compare and calculate with numbers in the form $a \times 10^n$.
- Move the decimal point after the first nonzero digit; the number of places moved is the exponent.
- To find how many times as much, divide the coefficients and subtract the exponents.
- Multiply by adding exponents; add or subtract only after both numbers share the same power of 10.
- Calculator notation $3.2E5$ means 3.2×10^5 , and $7.5E-3$ means 7.5×10^{-3} .