LESSON MAKER PRO

Big Number Moves

Calculate with scientific notation.

GRADE 7 · 7A.AF.B.16.a

7A.AF.B.16.a "Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used, expressing answers in scientific notation."

NAME _____ DATE _____

THE BIG IDEA

To add or subtract, first write both numbers with the same power of 10, then combine the numbers in front. To multiply or divide, work with the numbers in front and the powers of 10 separately. Write each answer as a number from 1 up to, but not including, 10 times a power of 10.

WORKED EXAMPLE

Find $(8 \times 10^4) + 3{,}000$. Write your answer in scientific notation.

1. Write 3,000 as 0.3×10^4.
2. Add: $(8 + 0.3) \times 10^4 = 8.3 \times 10^4$.
3. Check: 8.3 is at least 1 and less than 10.

Answer: 8.3×10^4

PRACTICE 6 problems

1 Find $(2 \times 10^5) + (5 \times 10^5)$. Write your answer in scientific notation.

ANSWER _____

2 Find $(9 \times 10^6) - (4 \times 10^6)$. Write your answer in scientific notation.

ANSWER _____

3 Find $(3 \times 10^4) + (6 \times 10^3)$. Write your answer in scientific notation.

ANSWER _____

4 Find $(6 \times 10^7) \div (2 \times 10^3)$. Write your answer in scientific notation.

ANSWER _____

5 Find $(7 \times 10^3) \times (2 \times 10^2)$. Write your answer in scientific notation.

ANSWER _____

6 Find $45{,}000 - (1.2 \times 10^4)$. Write your answer in scientific notation.

ANSWER _____

APPLY IT Show your work

1 A new game was downloaded 1.5×10^6 times last month and 750,000 times this month. How many downloads is that in all? Write your answer in scientific notation.

WORK SPACE

ANSWER _____

2 A video channel gained 1.8×10^7 views. If it gained 600,000 views each week, how many weeks did that take? Write your answer in scientific notation.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game has 4 regions with 1.2×10^6 players online in each region. Then 900,000 players log off. How many players remain online? Show your steps and write your answer in scientific notation.

WORK SPACE AND ANSWER

ANSWER KEY

Big Number Moves

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find $(2 \times 10^5) + (5 \times 10^5)$. Write your answer in scientific notation.	**7×10^5**
2	Find $(9 \times 10^6) - (4 \times 10^6)$. Write your answer in scientific notation.	**5×10^6**
3	Find $(3 \times 10^4) + (6 \times 10^3)$. Write your answer in scientific notation.	**3.6×10^4**
4	Find $(6 \times 10^7) \div (2 \times 10^3)$. Write your answer in scientific notation.	**3×10^4**
5	Find $(7 \times 10^3) \times (2 \times 10^2)$. Write your answer in scientific notation.	**1.4×10^6**
6	Find $45{,}000 - (1.2 \times 10^4)$. Write your answer in scientific notation.	**3.3×10^4**

PART 2 · APPLY IT

1. **2.25×10^6 downloads** Write 750,000 as 0.75×10^6, then add the numbers in front: 1.5 + 0.75 = 2.25.
2. **3×10^1 weeks** Divide 18,000,000 by 600,000 to get 30 weeks, or 3×10^1 weeks.

CHALLENGE

$4 \times (1.2 \times 10^6) = 4.8 \times 10^6$. Then $4.8 \times 10^6 - 0.9 \times 10^6 = 3.9 \times 10^6$ players.

Accept equivalent steps, but require final answers in scientific notation. In the challenge, students must multiply before subtracting.