LESSON MAKER PRO

Scientific Notation Lineup

Compare exponents and coefficients to put big numbers in order.

GRADE 7 · 7.NS.1.d

7.NS.1.d "Compare and order no more than four numbers greater than 0 written in scientific notation. Ordering may be in ascending or descending order.*"

NAME _____ DATE _____

COMPARE THE POWERS

For positive numbers in scientific notation, first compare the exponents. A greater exponent means a greater number. If the exponents are the same, compare the coefficients.

WORKED EXAMPLE

Order 9.1×10^5, 4.2×10^6, and 2.7×10^6 from least to greatest.

1. Compare the exponents: 10^5 is less than 10^6.
2. Place 9.1×10^5 first.
3. Compare the coefficients with 10^6: 2.7 is less than 4.2.

Answer: 9.1×10^5, 2.7×10^6, 4.2×10^6

PRACTICE 6 problems

1 Write < or > to compare: 6.4×10^3 ___ 8.1×10^3

ANSWER _____

2 Write < or > to compare: 5.2×10^7 ___ 1.9×10^8

ANSWER _____

3 Order these numbers from least to greatest: 7.3×10^4, 2.6×10^4, 9.8×10^4, 5.1×10^4.

ANSWER _____

4 Order these numbers from greatest to least: 3.4×10^9, 8.7×10^7, 1.2×10^8.

ANSWER _____

5 Which number is greatest: 9.4×10^6, 1.7×10^7, or 6.3×10^5?

ANSWER _____

6 Order these numbers from least to greatest: 4.5×10^{10}, 9.2×10^9, 3.1×10^{10}, 7.8×10^9.

ANSWER _____

APPLY IT Show your work

1 Three new videos have these first-week view counts: a dance video has 4.8×10^6 views, a game review has 2.3×10^7 views, and a science experiment has 9.6×10^6 views. Order the videos from most views to fewest views.

WORK SPACE

ANSWER _____

2 At a school esports event, four teams earn these numbers of points: Comets, 6.5×10^5; Falcons, 1.1×10^6; Meteors, 8.9×10^5; and Rockets, 3.2×10^6. Order the teams from fewest points to most points.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Without writing the numbers in standard form, order 1.05×10^8, 9.9×10^7, 8.7×10^8, and 1.1×10^8 from least to greatest. Then explain how you decided the order.

WORK SPACE AND ANSWER

ANSWER KEY

Scientific Notation Lineup

GRADE 7 · 7.NS.1.d

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Write < or > to compare: 6.4×10^3 ___ 8.1×10^3	**$6.4 \times 10^3 < 8.1 \times 10^3$**
2	Write < or > to compare: 5.2×10^7 ___ 1.9×10^8	**$5.2 \times 10^7 < 1.9 \times 10^8$**
3	Order these numbers from least to greatest: 7.3×10^4, 2.6×10^4, 9.8×10^4, 5.1×10^4.	**2.6×10^4, 5.1×10^4, 7.3×10^4, 9.8×10^4**
4	Order these numbers from greatest to least: 3.4×10^9, 8.7×10^7, 1.2×10^8.	**3.4×10^9, 1.2×10^8, 8.7×10^7**
5	Which number is greatest: 9.4×10^6, 1.7×10^7, or 6.3×10^5?	**1.7×10^7**
6	Order these numbers from least to greatest: 4.5×10^{10}, 9.2×10^9, 3.1×10^{10}, 7.8×10^9.	**7.8×10^9, 9.2×10^9, 3.1×10^{10}, 4.5×10^{10}**

PART 2 · APPLY IT

1. **game review, science experiment, dance video** The game review has exponent 7, so it has the most views. Of the two counts with exponent 6, 9.6 is greater than 4.8.
2. **Comets, Meteors, Falcons, Rockets** The two numbers with exponent 5 come before the numbers with exponent 6. Within each exponent, compare the coefficients.

CHALLENGE

9.9×10^7, 1.05×10^8, 1.1×10^8, 8.7×10^8. The number with exponent 7 is least. For the numbers with exponent 8, compare the coefficients: $1.05 < 1.1 < 8.7$.

Accept a correct order written as a comma-separated list or an inequality chain. For comparison items, accept the correct relation symbol or a correctly worded comparison.