Standard Form (Scientific Notation)

This worksheet covers converting numbers into and out of standard form (scientific notation), and performing calculations using standard form. Remember that standard form is written as $A \times 10^n$, where $1 \leq A < 10$.

Converting Large Numbers

1. Convert the following large numbers into standard form:

a. 500
b. $7,000$
c. $34,000$
d. $1,250,000$
e. $98,700,000,000$

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2. Convert the following from standard form back to ordinary numbers:

a. 4×10^3
b. 2.1×10^5
c. 8.09×10^7

Converting Small Numbers

3. Convert the following small numbers into standard form:

a. 0.006

b. 0.00035

c. 0.00000102

d. 0.7

4. Convert the following from standard form back to ordinary numbers:

a. 9×10^{-2}

b. 5.5×10^{-4}

c. 1.83×10^{-7}

Calculations and Ordering

5. Calculate the following, leaving your answer in standard form:

a. $(3 \times 10^4) \times (2 \times 10^3)$

b. $(8 \times 10^9) \div (2 \times 10^4)$

c. $(1.5 \times 10^{-2}) \times (4 \times 10^{-5})$

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6. Calculate the following and write the answer in standard form (you may need to adjust the final answer):

a. $(4 \times 10^5) + (3 \times 10^5)$

b. $(6 \times 10^4) - (8 \times 10^3)$

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7. The mass of Earth is $5.97 \times 10^{24}\ \text{kg}$ and the mass of Mars is $6.42 \times 10^{23}\ \text{kg}$. Find the total mass of the two planets combined, leaving your answer in standard form.

8. Order the following numbers from smallest to largest:
$A = 3.5 \times 10^{-3}$, $B = 0.0003$, $C = 4 \times 10^{-2}$, $D = 0.0019$