O Level Maths

Topic: Standard Form and Estimation

Instructions

Answer all questions. Show working where necessary. Use your knowledge of standard form and estimation to simplify and solve the given problems.

Practice Problems

1. Write the following numbers in standard form:
   (a) 0.00075
   (b) 52000
   (c) 9870000
2. Estimate the value of $4.7 \times 10^3 + 5.9 \times 10^4$ to 1 significant figure.
3. Express the following number in standard form: 0.00000981
4. Simplify $3.2 \times 10^5 \div 4 \times 10^3$
5. Convert 4.75×10^{-2} into a decimal number.
6. Multiply the following numbers in standard form: $(3 \times 10^2) \times (5 \times 10^3)$
7. Express the result of $6 \times 10^4 \div 2 \times 10^2$ in standard form.
8. Estimate $4.56 \times 10^6 - 3.24 \times 10^5$ to 2 significant figures.

Word Problems

1. The distance between Earth and the Moon is approximately 384400 km. Write this distance in standard form.
2. A small company produces 5400000 parts every year. Write this production quantity in standard form.
3. A science experiment requires measuring the mass of a particle as 3.25×10^{-8} grams. Estimate the mass of 10 such particles.

Multiple-Choice Questions

1. Which of the following is the correct standard form of 0.00045?
   A. 4.5×10^{-5}
   B. 4.5×10^{-4}
   C. 45×10^{-5}
   D. 4.5×10^{5}
2. Simplify $(5 \times 10^2) \times (2 \times 10^3)$:
   A. 10^5
   B. 10^6
   C. 10^7
   D. 10^8
3. Which of these is the correct estimation of $243.5 + 1280$ rounded to 1 significant figure?
   A. 1500
   B. 1300
   C. 1200
   D. 1400
4. What is the correct value of $5.5 \times 10^3 \div 5 \times 10^2$ in standard form?
   A. 1.1×10^3
   B. 1.1×10^2
   C. 1.1×10^4
   D. 1.1×10^5