National 5: Scientific Notation

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Q1 Non-calculator. Express each of the following numbers in scientific notation.

a) 340 000 000 **b)** 10 650 000 **c)** 84 500
d) 19 500 000 000 **e)** 4 702 000 **f)** 50 000 000 000

Q2 Non-calculator. Express each of the following numbers in scientific notation.

a) 0.000 003 **b)** 0.001 94 **c)** 0.000 000 801
d) 0.005 007 **e)** 0.000 600 12 **f)** 0.040 036

Q3 Non-calculator. Express each of the following numbers in scientific notation.

a) 500×10^4 **b)** 86.1×10^5 **c)** 0.015×10^6
d) 47×10^{-4} **e)** 567.2×10^{-8} **f)** $0.000\,68 \times 10^{-7}$

Q4 Non-calculator. Convert each of the following standard form numbers back into decimal form.

a) 5.1×10^4 **b)** 1.03×10^7 **c)** 8.017×10^8
d) 6×10^9 **e)** 9.845×10^2 **f)** $6.127\,035 \times 10^4$

Q5 Non-calculator. Convert each of the following standard form numbers into decimal form.

a) 2.6×10^{-5} **b)** 1.098×10^{-6} **c)** 8.71×10^{-9}
d) $1.000\,25 \times 10^{-4}$ **e)** 6×10^{-8} **f)** 5.001×10^{-1}

Q6 Non-calculator. Express each of these answers in scientific notation.

a) $(3 \times 10^4) \times (2 \times 10^5)$ **b)** $(4 \times 10^7) \times (3 \times 10^{-5})$ **c)** $(1.2 \times 10^5) \times (4 \times 10^8)$
d) $(5 \times 10^6) \times (6 \times 10^{-10})$ **e)** $(2.5 \times 10^4) \times (4 \times 10^8)$ **f)** $(1.1 \times 10^{-3}) \times (1.2 \times 10^8)$

Q7 Non-calculator. Express each of these answers in scientific notation.

a) $(8 \times 10^{10}) \div (4 \times 10^5)$ **b)** $(2.5 \times 10^4) \div (2 \times 10^5)$ **c)** $(3 \times 10^4) \div (2 \times 10^{-2})$
d) $(2 \times 10^4) \div (8 \times 10^7)$ **e)** $(1.4 \times 10^{-3}) \div (7 \times 10^5)$ **f)** $(1.8 \times 10^{-5}) \div (3 \times 10^{-5})$

Q8 Calculator. Express each of these answers in scientific notation, rounded to 2 significant figures.

a) $(9.2 \times 10^6) \times (6.3 \times 10^2)$ **b)** $(1.35 \times 10^8) \times (4.6 \times 10^{-4})$ **c)** $(7.8 \times 10^5) \times (3.9 \times 10^8)$
d) $(7.067 \times 10^5) \times (3.4 \times 10^{-8})$ **e)** $(4.5 \times 10^6) \times (2.61 \times 10^3)$ **f)** $(4.3 \times 10^{-7}) \times (1.7 \times 10^9)$

Q9 Calculator. Express each of these answers in scientific notation, rounded to 2 significant figures.

a) $(3.6 \times 10^{12}) \div (1.12 \times 10^8)$ **b)** $(6.6 \times 10^4) \div (2.401 \times 10^9)$ **c)** $(3 \times 10^9) \div (8.54 \times 10^{-1})$
d) $(5.2 \times 10^6) \div (4.45 \times 10^{15})$ **e)** $(1.03 \times 10^{-5}) \div (2.8 \times 10^{-8})$ **f)** $(7.8 \times 10^{-2}) \div (9 \times 10^3)$