5

Name: KEY Block: _____

Express ALL answers to the appropriate number of significant digits.

1. How many significant digits are in each of the following numbers?

(a) 8.0 m — 2
(b) 0.000246 cm — 3
(c) 2.050 kg — 4
(d) 1.615×10^8 m — 4
(e) 2.40×10^4 s — 3
(f) 50600 m — ambiguous .. could be 3, 4 or 5

2. Put the following into scientific notation:

(a) 50.6 — 5.06×10^1
(b) 7809 — 7.809×10^3
(c) 0.08 — 8×10^{-2}
(d) 284 000 — 2.84×10^5
(e) 0.00000211 — 2.11×10^{-6}

3. Write the following in expanded form:

(a) 1.35×10^5 — 135000
(b) 2.4506×10^{-2} — 0.024506
(c) 7.5×10^3 — 7500
(d) 1.300×10^{-7} — 0.0000001300

4. Calculate the following and express the answer in **scientific notation** with the correct number of **significant digits** and correct **units**.

(a) A wall measures 2.23m by 2.4m. Find the area. — $5.4\ m^2$

(b) divide $234.8 cm^2$ by 3.13cm — $75.0 cm = 7.50 \times 10^1\ cm$

(c) $\frac{89.05 g/mL \times 5.762 mL}{1.2 mL}$ — $4.3 \times 10^2\ g/mL$

(d) 3.982454cm x 8.3cm — $3.3 \times 10^1\ cm^2$

(e) 15.378mm + 0.25mm — $15.63 mm = 1.563 \times 10^1\ mm$

(f) $45.787 m^3 + 2.1 m^3$ — $47.9 m^3 = 4.79 \times 10^1\ m^3$

(g) 1.0001mm - 0.01mm — $0.99 mm = 9.9 \times 10^{-1}\ mm$

(h) 12.768kg - 1.02 kg — $11.75 kg = 1.175 \times 10^1\ kg$

(i) 2.5×10^{-8} g + 1.4×10^{-7} g — $1.6 \times 10^{-7}\ g$