Introduction: Measurement **Name:** _____

1. State the number of significant digits in each of the following:
   a) 67.83 _____ b) 0.000 6 _____ c) 0.000 310
   d) 200 000 _____ e) 932.001 _____ f) 8.200×10^4

2. Express each of the following in scientific notation with the correct number of significant digits:
   a) 400 000 _____ b) 6403 _____
   c) 0.000 076 _____ d) 0.004 000 _____
   e) 356.98×10^5 _____ f) 9.999 (3 sd) _____
   g) 56 300 (2 sd) _____ h) 14.005 00 _____

3. Express each of the following in common notation:
   a) 5×10^3 _____ b) 7.0×10^{-3} _____
   c) 8.23×10^2 _____ d) $6.003\ 0 \times 10^{-3}$ _____

4. Perform the following mathematical operations, expressing the answers in the correct number of significant digits:
   a) 354.9 + 4.579 + 0.340 + 0.098 = _____
   b) 834.102 - 7.01 = _____
   c) 3.76 - 256.7 = _____
   d) 0.000 23 x 5.98 x 0.063 = _____

5. Simplify the following, expressing the answer in scientific notation with the correct number of significant digits where appropriate:
   a) $10^5 \times 10^{14}$ = _____ b) $10^{-7} \times 10^{-5}$ = _____
   c) $10^8 \times 10^0 \times 10^{-4}$ = _____ d) $10^{-9} / 10^3$ = _____
   e) $(1.7 \times 10^8)(3.09 \times 10^5)$ = _____
   f) $(4.9 \times 10^{-7})(3.256 \times 10^5)$ = _____
   g) $(3.00 \times 10^4) / (1.004 \times 10^5)$ = _____
   h) $(8.7 \times 10^7)(1.2 \times 10^{-1}) / (6.342 \times 10^{-2})$ = _____