WORKSHOP 1 Name: _____

Significant Figures, Scientific Notation Operations

Section: _____

1. How many significant figures are there in each of the following measurements?

a) 0.763 cm _____ b) 503.6 ft _____ c) 0.00837 cm^3 _____

d) 420.06 km _____ e) 2.050 x 10^5 s _____ f) 0.208010 nm _____

2. Complete the following table.

Scientific notation	⇔	**Decimal notation**
7.50 x 10^{-3}	⇔	_____
_____	⇔	200.31
4.34 x 10^4	⇔	_____
_____	⇔	0.00008241

3. Round off the following numbers to **two** significant figures and write them in scientific notation.

a) 0.4457 _____ b) 538.31 _____

c) 2456 _____ d) 0.000055220 _____

4. Round off the following numbers to **three** significant figures and write them in scientific notation:

a) 0.00445796 _____ b) 538.31 _____

c) 2456.56 _____ d) 0.000055220 _____

5. Round off the following numbers to **four** significant figures and write them in scientific notation.

a) 0.00445796 _____ b) 538.31 _____

c) 2456.56 _____ d) 0.0000555226 _____

6. Solve each of the following problems. Express each answer to the correct number of significant figures, in scientific notation and with proper units.

a) $(6.83\text{ cm})(7.5921\text{ cm}) =$ _____

b) $(9.212 \times 10^3\text{ in})(5.02 \times 10^5\text{ in}^2) =$ _____

c) $400.6\text{ cm} + 28.202\text{ cm} =$ _____

d) $\dfrac{8902.33\text{ m}^3}{22.1\text{ m}} =$ _____

e) $\dfrac{(4800\text{ in})(62533\text{ in})}{320.\text{ in}} =$ _____

f) $342.5\text{ mL} + 26.31\text{ mL} - 15.9\text{ mL} =$ _____

g) $\dfrac{3.456\text{ ft} + 270.22\text{ ft}}{5.0006\text{ lb}} =$ _____

h) $\dfrac{(2.661 \times 10^7\text{ cm})(5.11 \times 10^4\text{ cm})}{7.3 \times 10^3\text{ cm}} =$ _____

i) $\dfrac{45.62\text{ s} - 3.5\text{ s}}{(32.9 \times 10^2\text{ s})(5.55 \times 10^6\text{ s})} =$ _____

7. **How many significant figures' should be in the final answer for the following problem?** A student wants to calculate the density (d=m/V; in units of g/mL) of a rectangular block of wood that measured 4.0 cm thick, 120 mm long, and 0.57 in wide (V=l x w x h) and has a mass of 0.720 kg, how many significant figures should be used for reporting the density?