

0: Math and Measurement
HW 1: Sig Fig Practice

Name:
Class:

Date:

Significant Figures include all known digits plus one estimated digit.

- The number of sig figs reflects the precision of the reported data.
- In calculations, the number of significant figures in the least precise measurement affects the number of significant figures in the answer.

Significant Figures	
Sample number: 0.024050 (5 sig figs)	
Not significant	Leftmost zeros in front of nonzero digits: <u>0.0</u> 24050
Significant	A nonzero digit: 0.0 <u>2</u> 40 <u>5</u> 0 Sandwiched zeros: 0.024 <u>0</u> 50 Zeros at the end of a number to the right of a decimal point: 0.02405 <u>0</u>

1. How many sig figs are present in each of the following?

123 m		40,506 mm	
9.8000x10 ⁴ g		22 meter sticks	
98,000 mL		0.07080 mol	
98.054 kg		250. s	

2. In the measurement 43.52 mL, which digit is the most uncertain?

- a. 4
b. 3

- c. 5
d. 2

3. List two situations in which numbers have an unlimited amount of sig figs.

4. Round each of the following to the indicated number of sig figs.

a. Round 65.145 meters to 4 significant figures.

b. Round 100.1°C to 1 significant figure.

c. Round 155 cm to two significant figures.

d. Round 0.000718 kilograms to two significant figures.

e. Round 65.145 meters to three significant figures.

5. Perform the following operations, then round to the correct number of sig figs.

Operation	Unrounded Answer	Correct Sig Figs
$5.19 \text{ cm} \times 0.03 \text{ cm} =$		
$400 \text{ m}^2 \times 30 \text{ m} =$		
$60 \text{ mol}^2 / 9.18 \text{ mol} =$		
$4.56 \times 10^4 \text{ mm}^3 / 5.846 \text{ mm} =$		
$77.452 \text{ g} + 1.7 \text{ g} =$		
$5.42 \text{ s} + 43.61 \text{ s} + 32.573 \text{ s} =$		
$8,800 \text{ mg} + 58 \text{ mg} =$		
$8.54 \text{ K} - 5.9 \text{ K} =$		
$32.62 \text{ g} - 1.61 \text{ g} - 0.5 \text{ g} =$		
$8.515 \text{ Mmol} - 4.6 \text{ Mmol} =$		