Uncertainty Worksheet

Name:_____

You will receive either a 100% or a zero for this assignment. Only perfect worksheets will be accepted. If your worksheet is not perfect, you will be permitted to retry a similar assignment for reduced credit.

1. Complete the following table.

Measured Value	Uncertainty (Error)	How to write in abstract
9.81254078 m/s	0.25201 m/s	9.81 ± 0.25 m/s
5761.124 mm	392.024 mm	
4.168920×10^{-9} N m^2/kg^2	6.71894×10^{-11} N m^2/kg^2	
0.0007982 kg	0.000001483 kg	
668.601 g	136.201 g	
2.331 s	2.6321×10^{-3} s	

2. Do Jill's measurements agree with Jack's value within 1 standard deviation, 2 standard deviations, or not at all?

Jill's value	Jack's value	Agree (1, 2, or N)?
6.24 ± 0.41 s	6.58 s	
$(11.194 \pm 0.095) \times 10^{-13}$ m	10.993×10^{-13} m	
0.04330 ± 0.00074 kg	0.04470 kg	
7146 ± 94 N	7058 N	

3.   5 people make the following measurements for the length of a street: 246.4 m, 247.0 m, 246.6 m, 247.4 m, and 246.6 m. For each part, make sure you include the appropriate unit.

(a)   What is the "best value" for the length of the street?

(b)   What is the uncertainty for this group of measurements?

(c)   Using your results to parts (a) and (b), write the length of the street in the appropriate format.