3 | Forces | Review

Name: _____ Period: __

Excel, Uncertainty, and Graphing

1. Calculate the following as Excel would:
   a. =average(A1:A4)

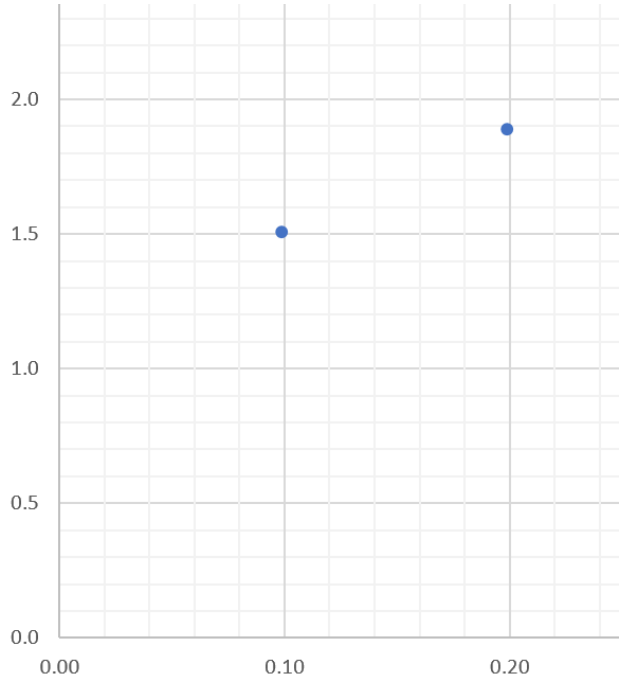
	A
1	18.4 s
2	17.8 s
3	17.6 s
4	18.2 s

   b. =(max(A1:A4)- min(A1:A4))/2

2. Report the measurement from this table as a value with uncertainty:

3. Reading the data table below, draw in the error bars for the first data point:

	Velocity v / m s^{-1} ± 0.1 m s^{-1}						
Pendulum Height h / m ± 0.01 m	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Average Velocity / m s^{-1}	Uncertainty / m s^{-1}
0.10	1.4	1.2	1.8	1.6	1.5	1.5	0.3
0.20	1.8	2.1	2.0	1.9	1.6	1.9	0.3
0.30	2.4	2.6	2.1	2.9	2.4	2.5	0.4
0.40	2.8	2.6	2.4	2.6	2.9	2.7	0.3
0.50	3.1	3.6	3.2	2.9	2.8	3.1	0.4
0.60	3.8	3.5	3.4	3.2	3.6	3.5	0.3



Important Concepts

4. What is the difference between mass and weight?

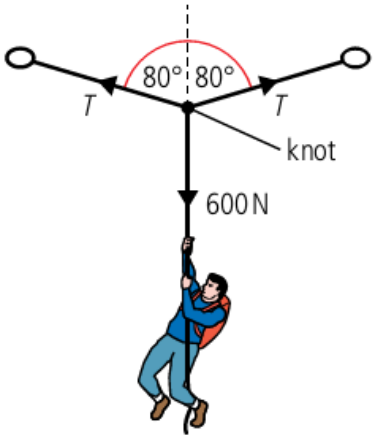
5. Draw and label a free body diagram for Mr. Cossette (75 kg) standing motionless on the floor. Do a little math and include values for the vectors that you include.

6. What is μ? What does it mean when you have a high or low value for μ?

7. If F_{net} = 0 N, then the object is….

Written Problems

8. A 600 N rock climber is hanging from a rope attached to the cliff by two bolts as shown in the diagram to the right. He is not moving so he is in equilibrium. Calculate the tension force required to support his weight.



9. A toy rocket is lifting off the launch pad.
    a. Draw the net force diagram when mass = 2 kg, air resistance = 12 N, and upward thrust = 42 N.

    b. Calculate the acceleration of the rocket

    c. How far has the rocket traveled in 4 seconds?

10. Calculate the coefficient of friction between a 15kg crate and the floor if it takes a push of 32.4 N to slide it at a constant velocity. (Draw the picture, write the force net equation… solve.)

11. You (65 kg) run at 4m/s into the kitchen and take 3.5 m to slide to a stop. What's the coefficient of friction?

12. Draw and label the force diagram for your 35-kg kid sister on a snowy 35° hill with a 0.13 coefficient of friction. Calculate the rate that she accelerates.