## Photoelectric Effect

As you work through the steps in the lab procedure, record your experimental values and the results on this worksheet. Use the exact values you record for your data to make later calculations.

## Data

The following data is an example of measured stopping potential  $V_0$  as a function of the wavelength  $\lambda$  of the light. (*Note: The values given may be different in the WebAssign question.*)

Table 1	
λ	$V_0$
(nm)	(volts)
80	10.29
100	7.29
120	5.52
140	4.10
160	3.05
180	2.27
200	1.65

In analyzing this data use the following values for physical constants:  $1 \text{ eV} = 1.602 \times 10^{-19} \text{ J}, e = 1.602 \times 10^{-19} \text{ C}, \text{ and } c = 2.998 \times 10^8 \text{ m/s}.$ 

## Analysis

Record the slope and y-intercept of the best straight-line fit to the  $V_0$  versus f data. Be sure to use the correct units and use three significant figures.

Calculate the work function in electron volts.

Calculate the value of Planck's constant h. Express your result in J  $\cdot$  s.

Determine the threshold frequency in Hz for the surface.

Calculate the maximum wavelength of light in nm that will produce photoelectrons from this surface.