Results and Calculations:
Draw standard curve and use Beer's law to determine concentration of ASA in your aspirin sample.

For Standard Curve: x-axis ⇒ concentration ASA (M)
y-axis ⇒ absorbance (no units) at λ_{max} nm

e.g. A 0.0252 g sample of ASA was dissolved in base and brought to volume in a 25.0 mL Concentration of ASA:

$$\frac{0.0252\,gASA}{180.16\frac{g}{mole}} = 1.399x10^{-4}\,moleASA$$

$$\frac{1.399x10^{-4}\,moleASA}{0.0250\,L} = 0.005595M$$

For standard series:

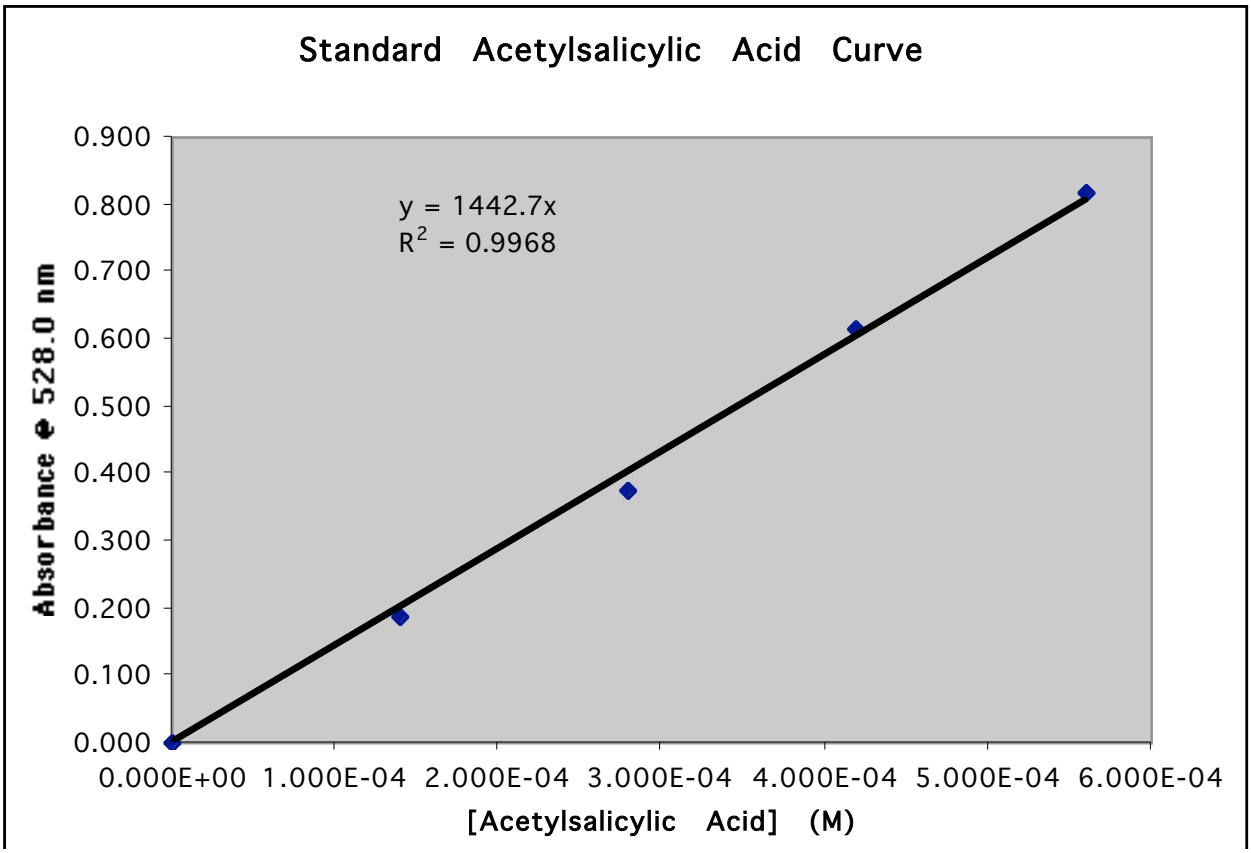
$$(0.005595\text{ M})(0.00025\text{ L}) = (\mathbf{x})(0.0100\text{ L})$$

$$\mathbf{x} = 1.399 \text{ x } 10^{-4}\text{ M}$$

Table 1: Standard ASA curve data.

Volume ASA (mL)	Concentration ASA (M)	Absorbance @ 528.0 nm
0.00	0.000	0.000
0.25	$1.399 \text{ x } 10^{-4}$	0.186
0.50	$2.798 \text{ x } 10^{-4}$	0.374
0.75	$4.196 \text{ x } 10^{-4}$	0.616
1.00	$5.595 \text{ x } 10^{-4}$	0.818

Figure 1: Standard Acetylsalicylic Acid Curve



Use standard curve to determine ε and use Beer's law to solve for concentration of ASA in your sample.

From Standard Curve:

$$\varepsilon = 1442.7 \text{ cm}^{-1}\text{M}^{-1}$$

Beer's law: $A = \varepsilon lc \Rightarrow c = \frac{A}{\varepsilon l}$, $l = 1.00$ cm for this experiment

Table 2: Absorbance Data for Bayer aspirin tablet:

Absorbance of Aspirin sample @ 528.0 nm	Concentration of aspirin sample in cuvette (M)
0.552	3.823×10^{-4}
0.533	3.691×10^{-4}
0.530	3.670×10^{-4}
0.540	3.743×10^{-4}

Mean Concentration of Aspirin sample: 3.732×10^{-4} M
Standard Deviation: 6.777×10^{-6} M (see p. 21 of lab manual)

Calculation of concentration in your aspirin sample: **Remember Dilutions**

1. Diluted 0.50 mL to 10.0 mL $\Rightarrow \frac{10.0}{0.50} = 20$
   so $(3.732 \times 10^{-4}\text{ M})(20) = 7.464 \times 10^{-3}$ M

2. Total moles in 250 mL solution:
   $(7.464 \times 10^{-3}$ mole/L)(0.250 L) = 1.866×10^{-3} mole

3. Total grams (g) of acetylsalicylic acid in sample:
   $(1.866 \times 10^{-3}$ mole)(180.16 g/mole) = 0.3362 g ASA

4. Total mg ASA:
   (0.3362 g)(1000 mg/g) = 336.2 mg ASA