

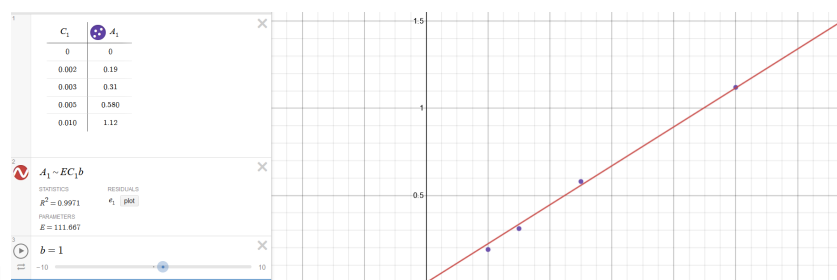
Sports Drink Pre-lab

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q1

- $\epsilon = 111.67 \text{ M}^{-1} \text{ cm}^{-1}$



- Slope = 111.67 M per $\text{M}^{-1} \text{ cm}^{-1}$

q2

- $A = \epsilon C b$
- $0.082 = (2.35 \cdot 10^4)(1 \text{ cm})(x)$
- $x = \frac{0.082}{2.35 \cdot 10^4} = 0.000003489 = 3.48 \cdot 10^{-6} \text{ M}$
- The molarity of the copper ion is lower than the threshold.

q3

- $M_1 V_1 = M_2 V_2$
- $(20 \text{ ml})(1.05 \text{ mol/L}) = (x \text{ mol/L})(250 \text{ mL})$
- $M_2 = 0.084 \text{ M}$

q4

- $M_1 V_1 = M_2 V_2$
 – $M_2 = 0.020 \text{ M}, V_2 = 0.500 \text{ L}$
- a) $0.02 \text{ L} = \frac{x \text{ M}}{82.03 \text{ M/g}}, x = 2.4 \cdot 10^{-4} \text{ g}$. They can add $2.4 \cdot 10^{-4} \text{ g}$ to the solution.

- b) $M_1 = 0.850M$, $(0.850M)(xL) = (0.020M)(0.500L)$, $x = 1.12 \cdot 10^{-2}$ L. They can add $x = 1.12 \cdot 10^{-2}$ liters of the stock solution to create their solution.