In the "capstone" experiment you will mix known amounts of two reactants. You will pre dict (calculate) the amount of product (theoretical yield) and then compare this with the amount of product that you actually obtain (actual yield) when the two are reacted. To help you prepare for the lab, you will complete this practice lab, which is similar to the actual experiment you will be performing in the lab. This experiment will be worth 50 points.

The following is the capstone lab procedure and sample data obtained by a student.

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A. THEORETICAL YIELD

1. Weigh a clean, dry evaporating dish and record its mass in the table below.

2. Add 2.0 to 2.5 grams of Zinc and record the mass of the Zn plus di sh in the table below.

Mass of evaporating dish	25.21 g
Mass of dish and Zn	27.16 g

3. Calculate the mass of the Zn sample.

4. Write the balanced equation for the reaction of Zn and hydrochloric acid.

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5. Calculate the volume (in mL) of 2.00 $\underline{M}$ hydrochloric acid solution you will need to react all of the Zn.

6. Calculate the *theoretical yield*, in grams, of zinc chloride produced in the reaction. (molar mass zinc chloride = 136.30)

B. ACTUAL YIELD

1. Add the calculated amount of hydrochloric acid solution to the zinc. When the reaction is complete, dry the product to a constant mass over a steam bath.

Mass of dish and product 1st heating	30.26 g
Mass of dish and product 2nd heating	29.41 g
Mass of dish and product 3rd heating	29.35 g
Mass of dish and product 4th	

2. Calculate the *actual yield* (in grams) of zinc chloride produced

C PERCENT YIELD

Calculate the percent yield of zinc chloride.