Fluid Dynamics Lab

1. Take all the appropriate measurements of the styrofoam cup (height and diameters).

2. Mark two hole locations on the cup, one at the base and another at a fixed height below the top of the cup. Record their locations relative to the ground. The cup will rest on a surface at a height $H$ above the ground.

3. With a pen, mark two locations inside the cup: one location will represent the initial water level ($h_0$), and the other a height to which it will drain ($h_f$) in some time $t$.

4. Fill the cup with water to $h_0$.

5.Estimate $v_1$ by puncturing a hole on your cup (use the base location) and timing how long it takes for the water level to drop from $h_0$ to $h_f$.

6. Compute how far from the base does the water fall using the hole location from step 5. Note, you will need to compute T (time it takes the water to reach the ground) and $v_2$ first (and the corresponding errors). Compare this against your measured distance. Compute your percentage error.

7. Repeat step 6 with the other hole location.

9. Tabulate your results with your results

| $h_0 \pm \delta h_0$ | $h_1 \pm \delta h_1$ | $H \pm H$ | $v_1 \pm \delta v_1$ | $v_2 \pm \delta v_2$ | $t \pm \delta t$ | $T \pm \delta T$ | $y \pm \delta y$ | $x \pm \delta x$ |
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9. Comment on your results and any discrepancies between theory and experiment.