

AST 301  
Homework #12  
Due Friday May 6

1. Find some paper or plastic cups that you can destroy for the advancement of science.

Punch a small hole (perhaps with the point of a pencil) in the bottom of a cup. Take your cup to a sink and turn on the water so that it runs slowly. Hold your cup under the water and see what happens. If the water overflows the cup turn down the flow or punch a bigger hole in the bottom of the cup. Adjust the flow and hole so that the water reaches a stable level in your cup. Write down a very brief description of what you have done so far. Use the word 'equilibrium' in your description.

Next, try increasing or decreasing the flow into the cup by a small amount. Describe how the level of the water in your cup and the flow out of your cup change. If you increase the flow very much the cup will overflow. See if you can avoid this by increasing it only a little. Finally, try changing the size of the hole in your cup, while keeping the flow of water constant. Describe what happens.

Sign your name on your cup and hand it in along with your descriptions.