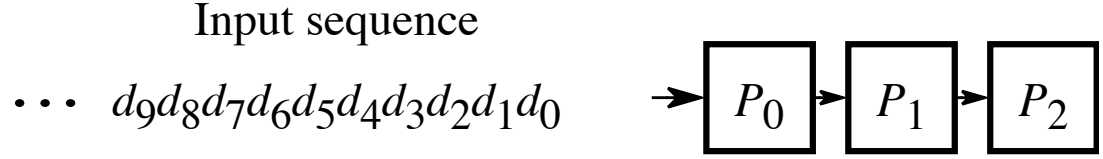
Worksheet #23: Analyzing Parallelism in an Actor Pipeline

Name: _____ Net ID: _____

Consider a three-stage pipeline of actors (as in slide 5), set up so that P0.nextStage = P1, P1.nextStage = P2, and P2.nextStage = null. The process() method for each actor is shown below. Assume that 100 non-null messages are sent to actor P0 after all three actors are started, followed by a null message. What will the total WORK and CPL be for this execution? Recall that each actor has a sequential thread.




```
1.      protected void process(final Object msg) {
2.          if (msg == null) {
3.              exit();
4.          } else {
5.              doWork(1); // unit work
6.          }
7.          if (nextStage != null) {
8.              nextStage.send(msg);
9.          }
10.     }
```