

17-355/17-655/17-819: Program Analysis

In-Class Exercises

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1. For constant propagation analysis, define the flow function for “ $x := y \text{ op } z$ ” Be sure to think what happens for all elements of the constant propagation lattice.

2. Use the worklist algorithm to apply reaching definitions analysis to this program, showing intermediate analysis results as well as the worklist contents at each step:

```
1 : y := x
2 : z := 1
3 : if y = 0 goto 7
4 : z := z * y
5 : y := y - 1
6 : goto 3
7 : y := 0
```

3. What is the right initial dataflow information for live variables analysis?