

## CS200 lab 12, dependence graphs and topological sort

**name:**

**id:**

1. Study the P5 assignment description. Given the following equations:

$$a = 10$$

$$b = 5$$

$$c = a*a+b*b$$

$$d = 5*b$$

$$e = 100$$

$$f = d+e$$

$$g = 1*2$$

$$h = a+b+c+g$$

In the dependence graph we represent an equation by its left hand side identifier.

- a. Draw the dependence graph for the above equations, as a graph with nodes and edges, describing which identifiers are needed in the evaluation of which identifiers.

- b. Now draw the dependence graph as an array-list of adjacency lists, where an adjacency list has a source, an inDegree, and an array list of destinations.

c. Perform a topological sort of the dependence graph on paper, showing the stages of the algorithm. Write on following lines **all identifiers** that can be evaluated first, next, etc.