Names: _____

CS Logins: _____

Worksheet #11

More Graphs

As always, sit with a partner and work through these together.

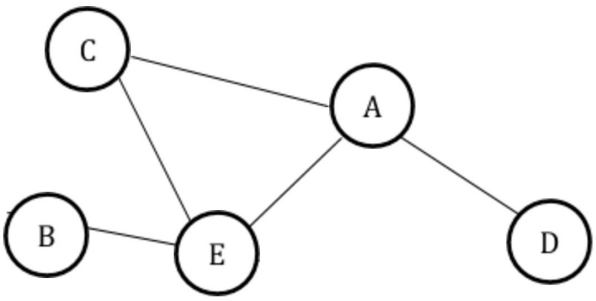
Activity #2: Work together to fill in the blank boxes with the appropriate run times**.** It may be helpful to write pseudocode in the margins to determine runtimes!

	Edge Set	Adjacency Sets	Adjacency Matrix
Overall Space	$\|V\| + \|E\|$	$\|V\| + \|E\|$	
vertices( )[1]	$O(1)^*$	$O(1)^*$	$O(1)^*$
edges( )	$O(1)^*$		$\|V\|^2$
incidentEdges(v)	$\|E\|$	$O(1)^*$	$\|V\|$
areAdjacent (v_1, v_2)		$O(1)$	$O(1)$
insertVertex(val)	$O(1)$		$\|V\|$
insertEdge(v_1, v_2)		$O(1)$	
removeVertex(v)	$\|E\|$		$\|V\|$
removeEdge(v_1, v_2)	$O(1)$		

[1] In all approaches, we maintain an additional list or set of vertices

* in place

Activity #3: Perform a Breadth First Traversal on this graph, given that the start node is C



Queue:_____

Output:_____