Operating Systems HW2:

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1) A) True, as cycles in the graph would imply that some process is both the descendant and ancestor of another process, an impossible situation.
   B) False, as there could be an orphaned process running, which would therefore be disconnected from the rest of the graph.
   C) True, since a process cannot have more than one parent: the only situation in which ignoring the directions of edges in a DAG would create a cycle is when a node has 2 children, who in turn share a child, a situation which is impossible in the given graph.
   D) True, see B

2) A) False, as the processes could be running concurrently, hence having different pids.

B) True, if both processes are necessarily running concurrently, and False otherwise, as one process could start after the other ended, and might be assigned the same pid as the process that ran first.

C) False, both processes have their own copy of x, and due to memory virtualization, the address of x in both processes' memory spaces is not necessarily the same.

D) False, although both processes have their own copy of x, due to memory virtualization, the address of x in both processes' memory spaces could potentially be the same.