

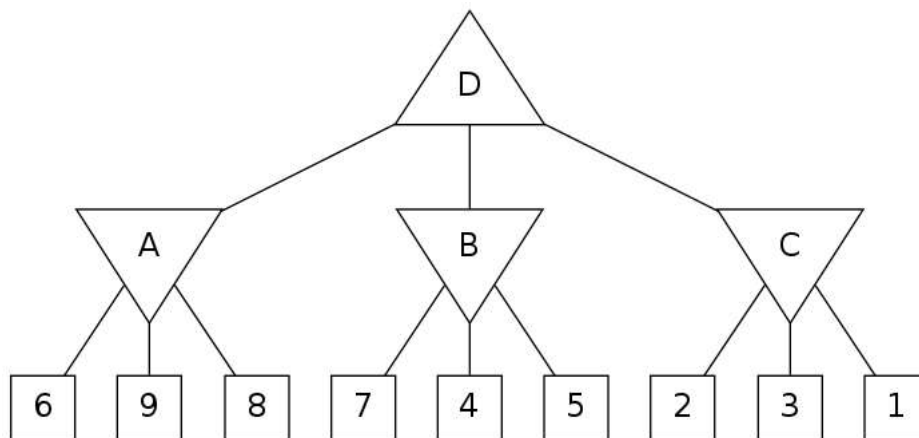
## hw3\_games\_q4\_alpha\_beta\_pruning

## Question 4: Alpha-Beta Pruning

13/13 points (ungraded)

Consider the game tree shown below. Triangles that point up, such as at the top node (root), represent choices for the maximizing player; triangles that point down represent choices for the minimizing player. Assuming both players act optimally, use alpha-beta pruning to find the value of the root node. The search goes from left to right; when choosing which child to visit first, choose the left-most unvisited child. In the first set of boxes below, enter the values of the labeled nodes. Then, in the second set of boxes, enter a 'x' for the leaf nodes that don't get visited due to pruning. For leaf nodes that do get visited, leave the corresponding entry blank.

Hint: Note that the value of a node where pruning occurs is not necessarily the maximum or minimum (depending on which node) of its children. When you prune on conditions  $V > \beta$  or  $V < \alpha$ , assume that the value of the node is  $V$ .



A	B	C	D
6 ✓ Correct!	4 ✓ Correct!	2 ✓ Correct!	6 ✓ Correct!

6	9	8	7	4	5
					x
✓	✓	✓	✓	✓	✓

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✓ Correct (13/13 points)