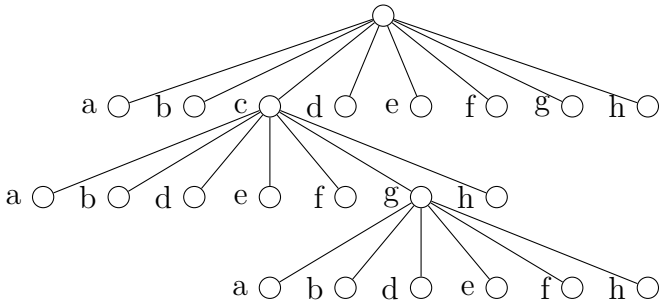
cmput396 **asn5 (preliminary)** **do not hand in** **0 marks**

1. For a position in a 2-player game with players `x,o` and player-to-move `x`, here is a mcts tree at some point in execution. Node labels show the associated move. Now a simulation occurs at the leaf node whose path from the root is `-c-g-f`, playout `-e-a-h-b`, result `x` win.

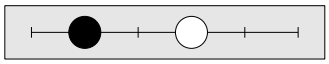
   i) For each node in the tree, give the change to the node's `wins, visits, rave-wins, rave-visits` that happens during backup. The changes for nodes at depth 1 are shown.

   ii) Repeat for leaf node `-c-g-b`, playout `-f-e-a`, result `o` win.




```
    a  b  c  d  e  f  g  h ca cb cd ce cf cg ch cga cgb cgd cge cgf cgh
w          +1
v          +1
rw +1 +1 +1        +1
rv +1 +1 +1        +1
```

2. For this 1×6 go position, black to play, what is the minimax value? Show the principal variation of your proof tree.



1.

	a	b	c	d	e	f	g	h	ca	cb	cd	ce	cf	cg	ch	cga	cgb	cgd	cge	cgf	cgh
w			+1																	+1	
v			+1											+1						+1	
rw	+1	+1	+1			+1										+1	+1			+1	
rv	+1	+1	+1			+1						+1		+1	+1	+1	+1			+1	

	a	b	c	d	e	f	g	h	ca	cb	cd	ce	cf	cg	ch	cga	cgb	cgd	cge	cgf	cgh
w														+1							
v			+1											+1			+1				
rw									+1				+1	+1							
rv		+1	+1		+1				+1				+1	+1			+1		+1		

2. minimax value black +6