

P1

>>>>>>Running Value Iteration...

Value Function (Value Iteration):

```
[[13.29362142 17.33892814 22.5940607 17.94118917]
 [13.46249635 16.27084359 19.36556509 22.62055706]
 [11.03467708 13.30874782 16.26274506 16.93044814]
 [ 7.54355538 10.24772366  9.42801595 12.21844409]]
```

Policy is:

```
[['RIGHT' 'RIGHT' 'RIGHT' 'DOWN']
 ['RIGHT' 'RIGHT' 'UP' 'UP']
 ['RIGHT' 'UP' 'UP' 'UP']
 ['UP' 'UP' 'RIGHT' 'UP']]
```

>>>>>-----

>>>>>>Running Policy Iteration...

Value Function (Policy Iteration):

```
[[13.41000475 17.43446707 22.67071323 18.00327771]
 [13.58348974 16.36677532 19.43628749 22.67162583]
 [11.14166767 13.39608167 16.32726936 16.97302484]
 [ 7.63001989 10.32418352  9.47108366 12.25297541]]
```

Policy is:

```
[['RIGHT' 'RIGHT' 'RIGHT' 'DOWN']
 ['RIGHT' 'RIGHT' 'UP' 'UP']
 ['RIGHT' 'UP' 'UP' 'UP']
 ['UP' 'UP' 'RIGHT' 'UP']]
```

```
>>>>>>Running Value Iteration...
```

```
Value Function (Value Iteration):
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```
[[13.29362142 17.33892814 22.5940607 17.94118917]
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```

```
Policy is:
```

```
[['RIGHT' 'RIGHT' 'RIGHT' 'DOWN']
 ['RIGHT' 'RIGHT' 'UP' 'UP']
 ['RIGHT' 'UP' 'UP' 'UP']
 ['UP' 'UP' 'RIGHT' 'UP']]
```

```
>>>>>-----
```

```
>>>>>>Running Policy Iteration...
```

```
Value Function (Policy Iteration):
```

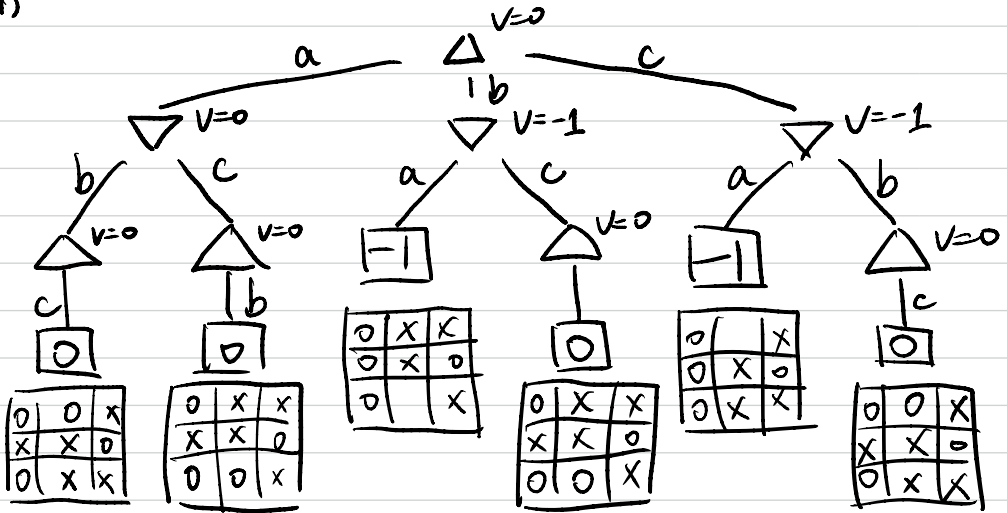
```
[[13.41000475 17.43446707 22.67071323 18.00327771]
 [13.58348974 16.36677532 19.43628749 22.67162583]
 [11.14166767 13.39608167 16.32726936 16.97302484]
 [ 7.63001989 10.32418352  9.47108366 12.25297541]]
```

```
Policy is:
```

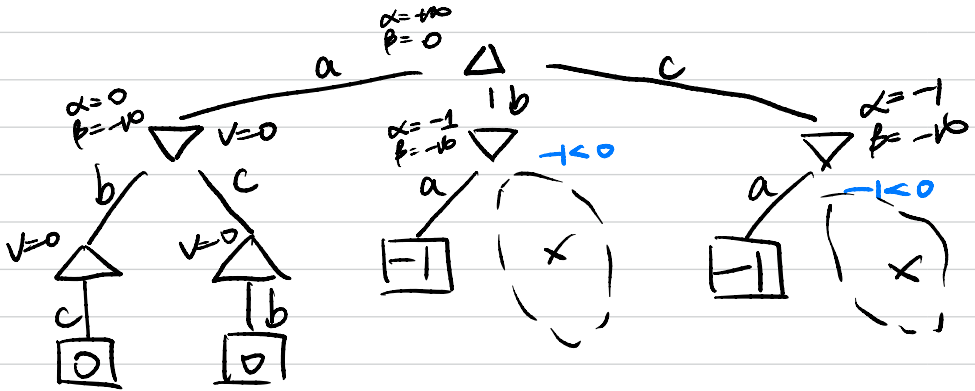
```
[['RIGHT' 'RIGHT' 'RIGHT' 'DOWN']
 ['RIGHT' 'RIGHT' 'UP' 'UP']
 ['RIGHT' 'UP' 'UP' 'UP']
 ['UP' 'UP' 'RIGHT' 'UP']]
```

P₂

(1)



(2) Yes.



$\alpha = -1 < \beta = 10$, no need to check right minimax tree, right part can be pruned.