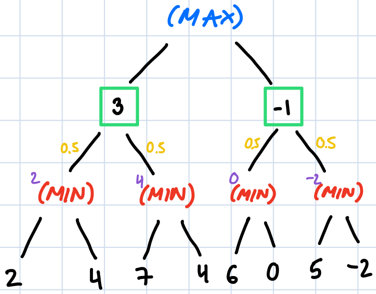
HW 1

⇒ Q4.a



$p_2 = 0.5$
$p_4 = 0.5$
$p_0 = 0.5$
$p_{-2} = 0.5$

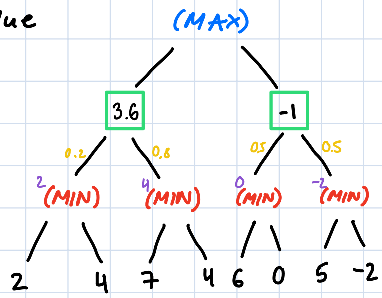
→ A[2]:
$= 0.5 \cdot 2 + 0.5 \cdot 4$
$= 3$

→ A[3]:
$= 0 \cdot 0.5 + (-2) \cdot 0.5$
$= -1$

⇒ A[1] = 3
$\boxed{(MAX) = 3}$

⇒ Q4. b

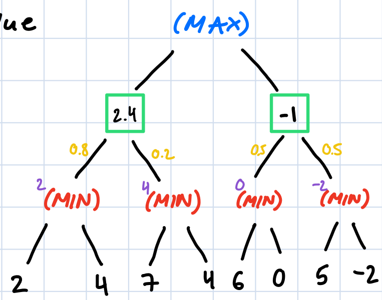
Larger Value



$p_2 = 0.2$
$p_4 = 0.8$
$p_0 = 0.5$
$p_{-2} = 0.5$

(MAX) = 3.6
↳ 3.6 > 3 (MAX vs prev MAX)

Smaller Value

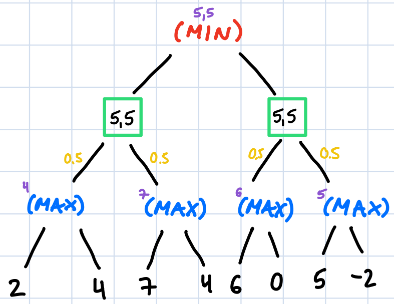


$p_2 = 0.8$
$p_4 = 0.2$
$p_0 = 0.5$
$p_{-2} = 0.5$

(MAX) = 2.4
↳ 2.4 < 3 (MAX vs prev MAX)

Negative Value
→ There exists no combinantion of x, y; where $x + y = 1$, that yields a negative number.
↳ In other words:
There do not exist $x, y \in [0,1]$ such that $x + y = 1$, and $(x \cdot a) + (y \cdot b)$, where $a, b \geq 0$ (in our case $a = 2$, $b = 4$)

⇒ Q4. c



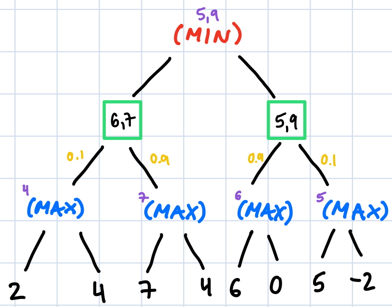
$P_4 = 0.5$
$P_7 = 0.5$
$P_6 = 0.5$
$P_5 = 0.5$

→ A[2]:
$= 0.5 \cdot 4 + 0.5 \cdot 7$
$= 5{,}5$

→ A[3]:
$= 0.5 \cdot 6 + 0.5 \cdot 5$
$= 5{,}5$

⇒ A[1] = 3
$\boxed{(MIN) = 5{,}5}$

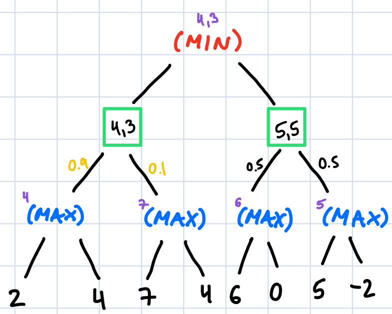
Larger value



$P_4 = 0.1$
$P_7 = 0.9$
$P_6 = 0.9$
$P_5 = 0.1$

(MIN) = 5.9
↳ 5.9 > 5.5 (MIN vs prevMIN)

Smaller value



$P_4 = 0.9$
$P_7 = 0.1$
$P_6 = 0.5$
$P_5 = 0.5$

(MIN) = 4,3
↳ 4,3 < 5,5 (MIN vs prevMIN)

Negative Value

→ All children of chance nodes are positive
→ There exists no combinantion of x, y; where $x+y=1$, that yields a negative number.

↳ *In other words:*

There do not exist $x, y \in [0,1]$ such that $x+y=1$, and $(x \cdot a) + (y \cdot b)$, where $a, b \geq 0$ (in our case $a=2$, $b=4$)