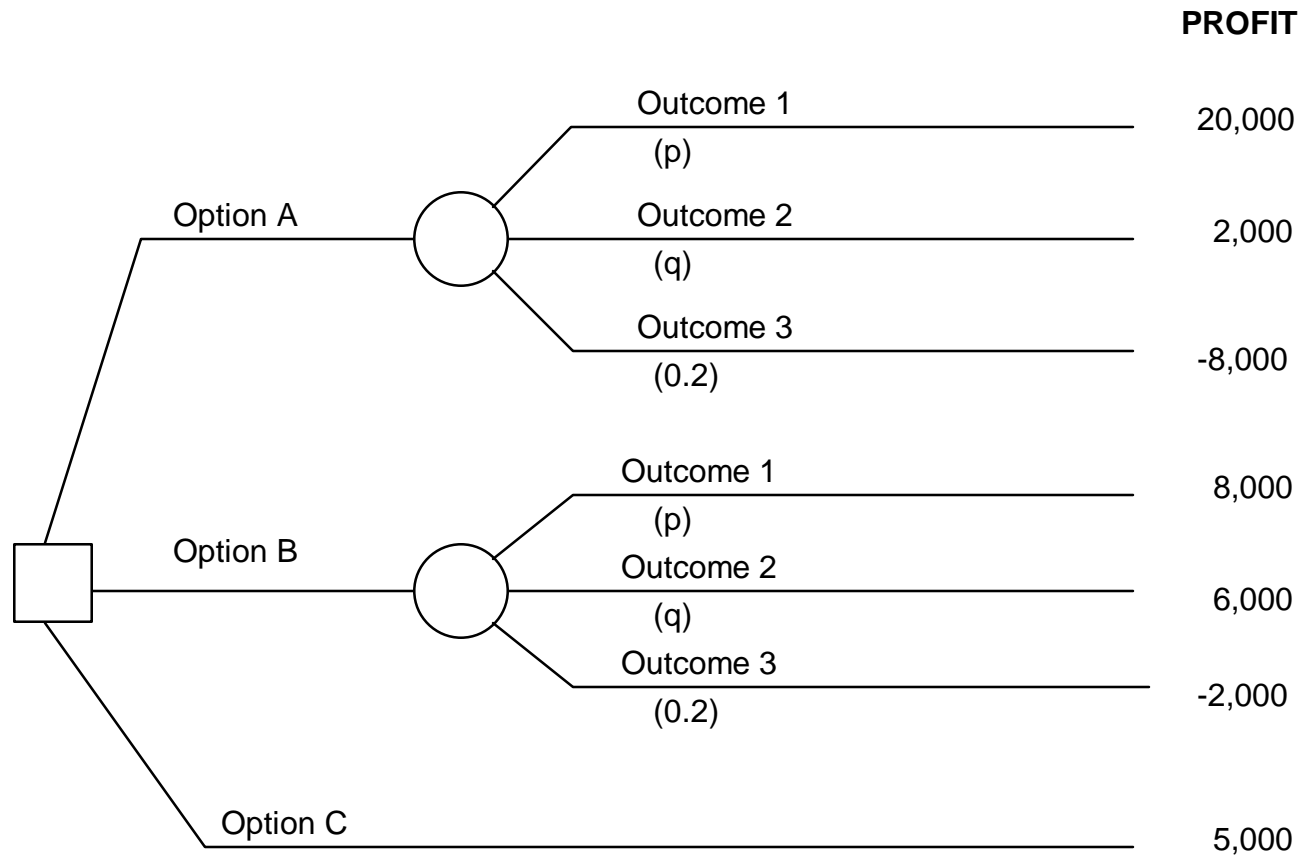


DECISION TREE EXTRA PROBLEM SESSION 5



$$\text{EMV}(\text{Option A}) = 20000 \cdot p + 2000 \cdot q - 1600$$

$$\text{EMV}(\text{Option B}) = 8000 \cdot p + 6000 \cdot q - 400$$

$$\text{EMV}(\text{Option C}) = 5000$$

Option A “preferred over” Option B $\Leftrightarrow \text{EMV}(\text{Option A}) > \text{EMV}(\text{Option B}) \Leftrightarrow$

$$20000 \cdot p + 2000 \cdot q - 1600 > 800 \cdot p + 6000 \cdot q - 400 \Leftrightarrow$$

$$p > \frac{1}{3} \cdot q + \frac{1}{10}$$

Option A “preferred over” Option C $\Leftrightarrow \text{EMV}(\text{Option A}) > \text{EMV}(\text{Option C}) \Leftrightarrow$

$$20000 \cdot p + 2000 \cdot q - 1600 > 5000 \Leftrightarrow$$

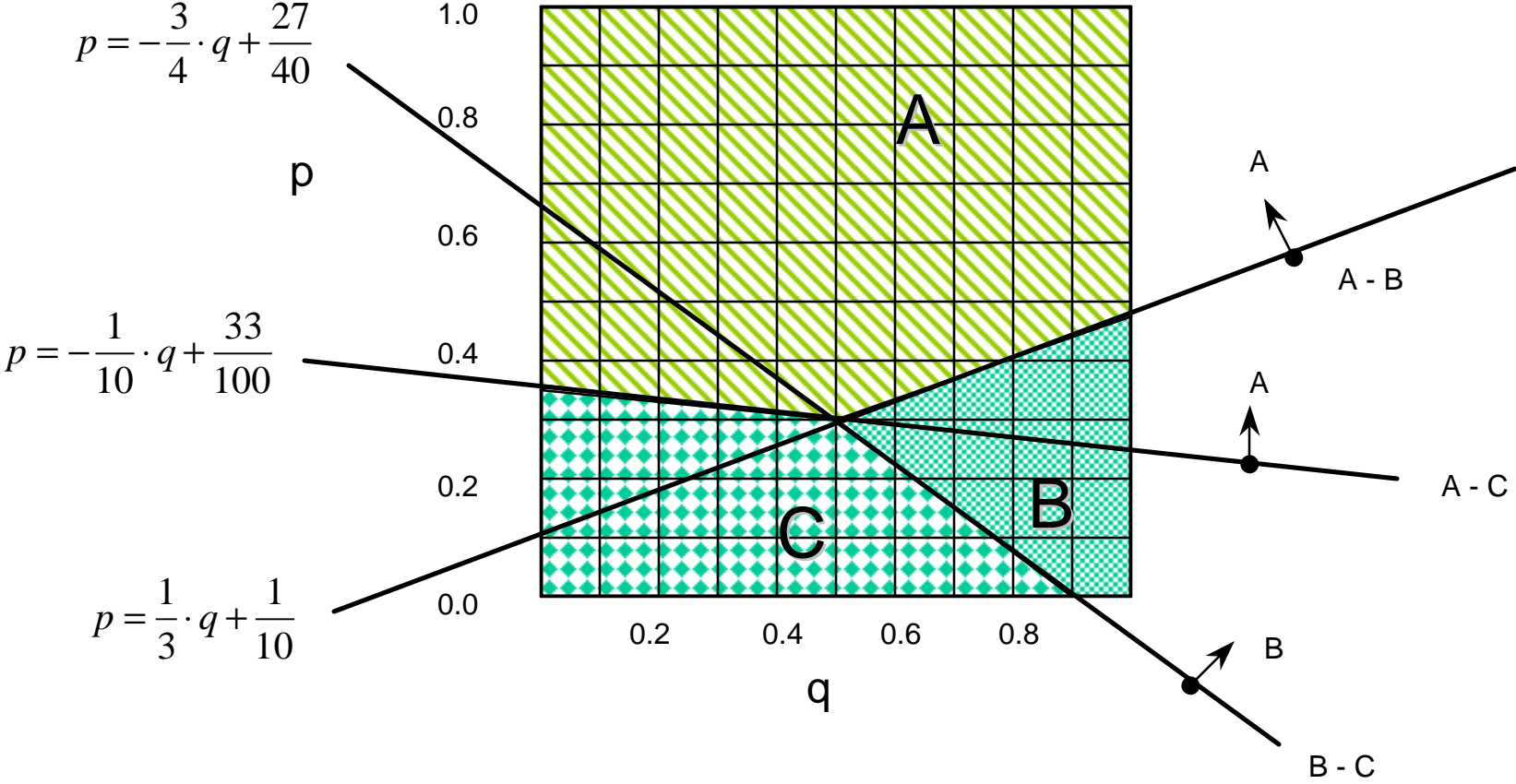
$$p > -\frac{1}{10} \cdot q + \frac{33}{100}$$

Option B “preferred over” Option C $\Leftrightarrow \text{EMV}(\text{Option B}) > \text{EMV}(\text{Option C}) \Leftrightarrow$

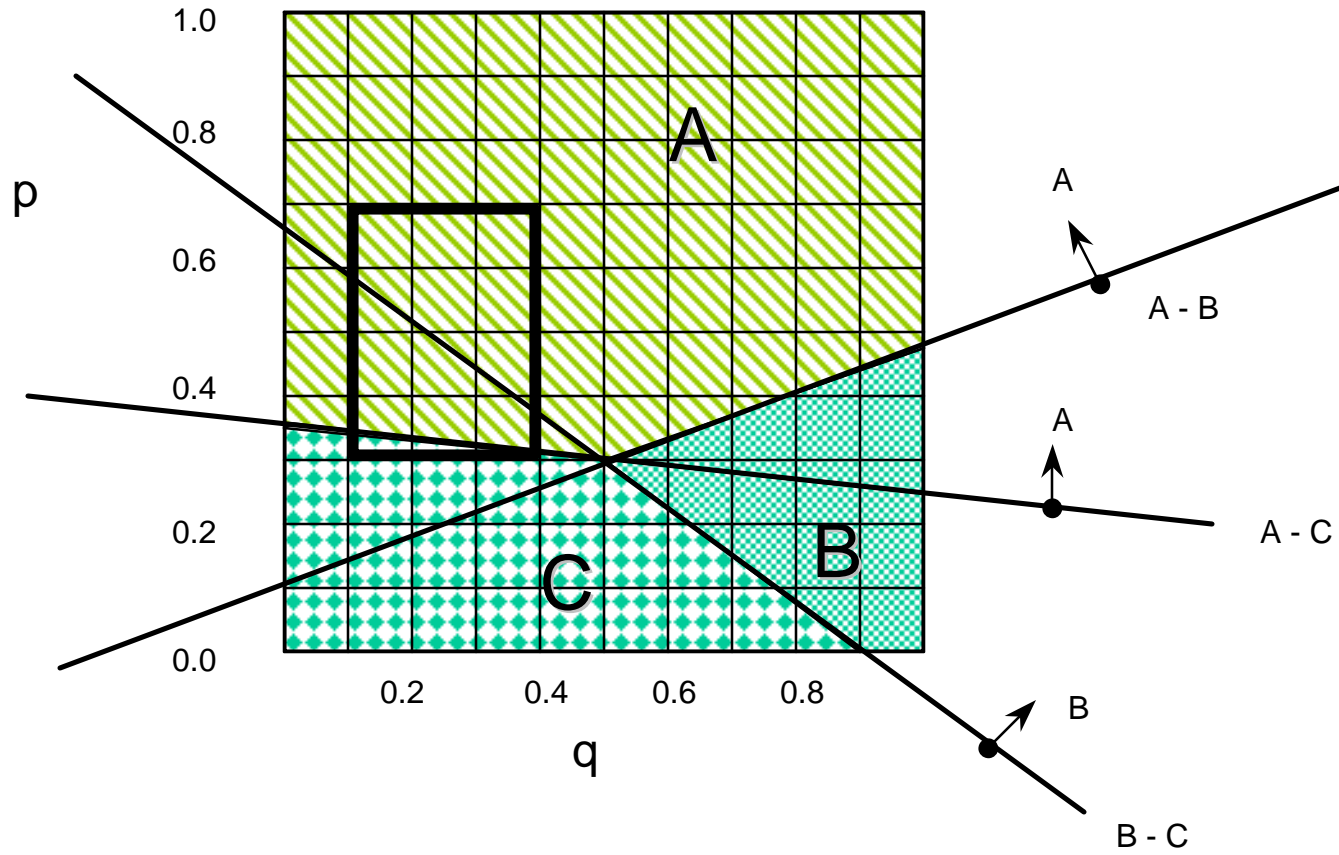
$$800 \cdot p + 6000 \cdot q - 400 > 5000 \Leftrightarrow$$

$$p > -\frac{3}{4} \cdot q + \frac{27}{40}$$

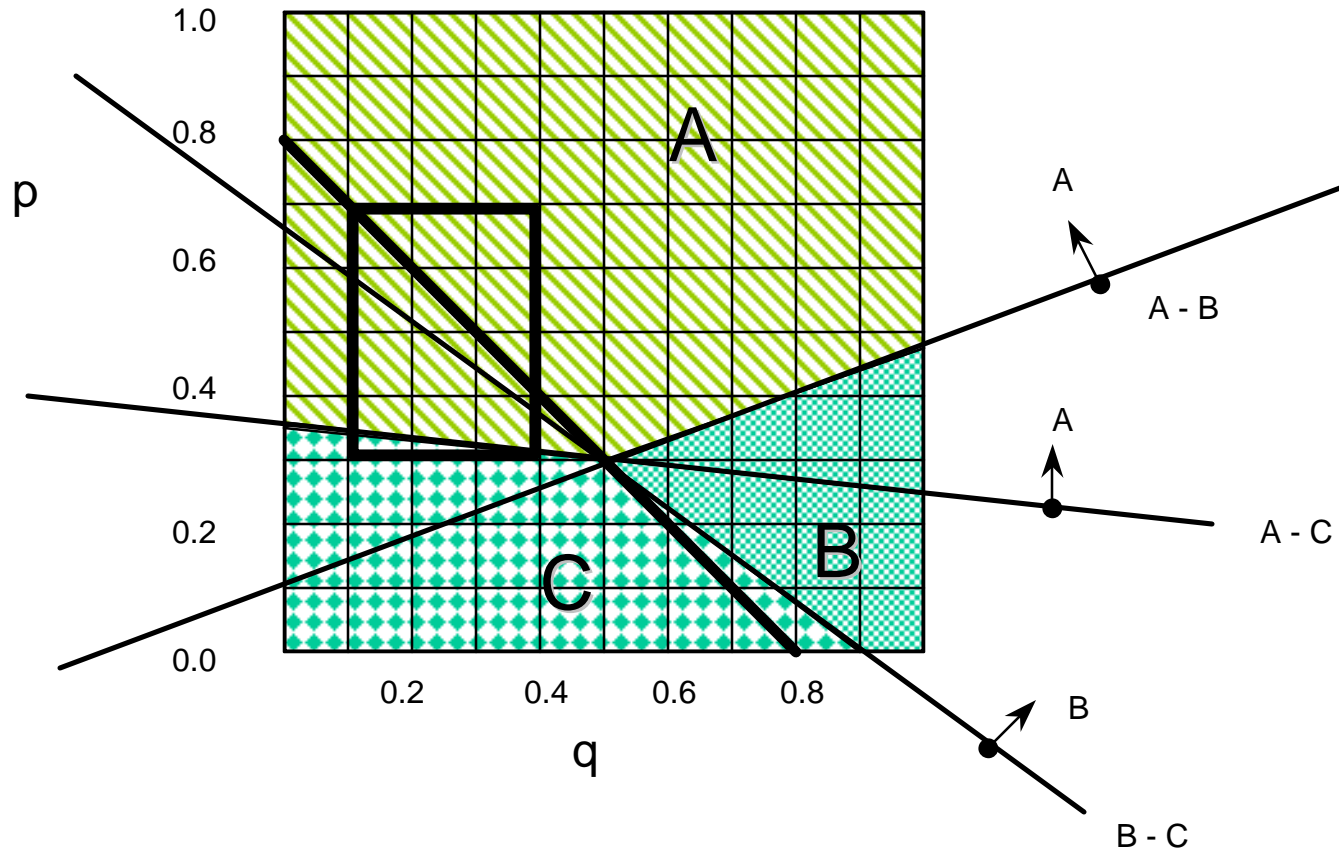
CREATE STRATEGY REGION GRAPH



USE INFORMATION: $0.1 \leq q \leq 0.3$, $0.3 \leq p \leq 0.7$



FINALLY, USE INFORMATION: $p = -q + 0.8$



Conclusion: Yes DM can make a decision.
The Optimal Decision is option A.