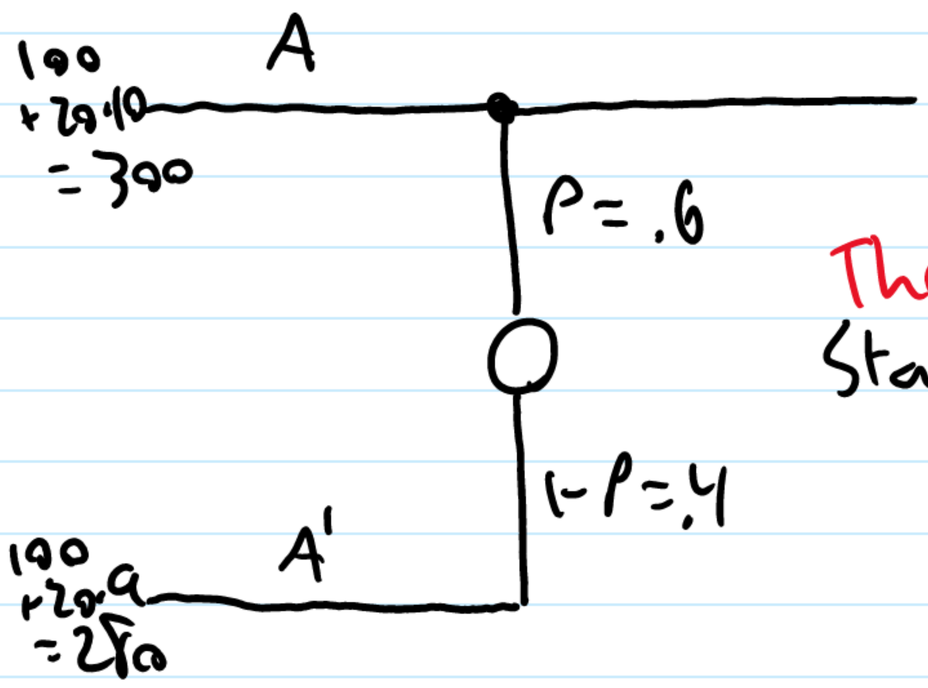
HW 11 An Extensive Form Game Against Nature

Wednesday, November 25, 2020 4:51 PM

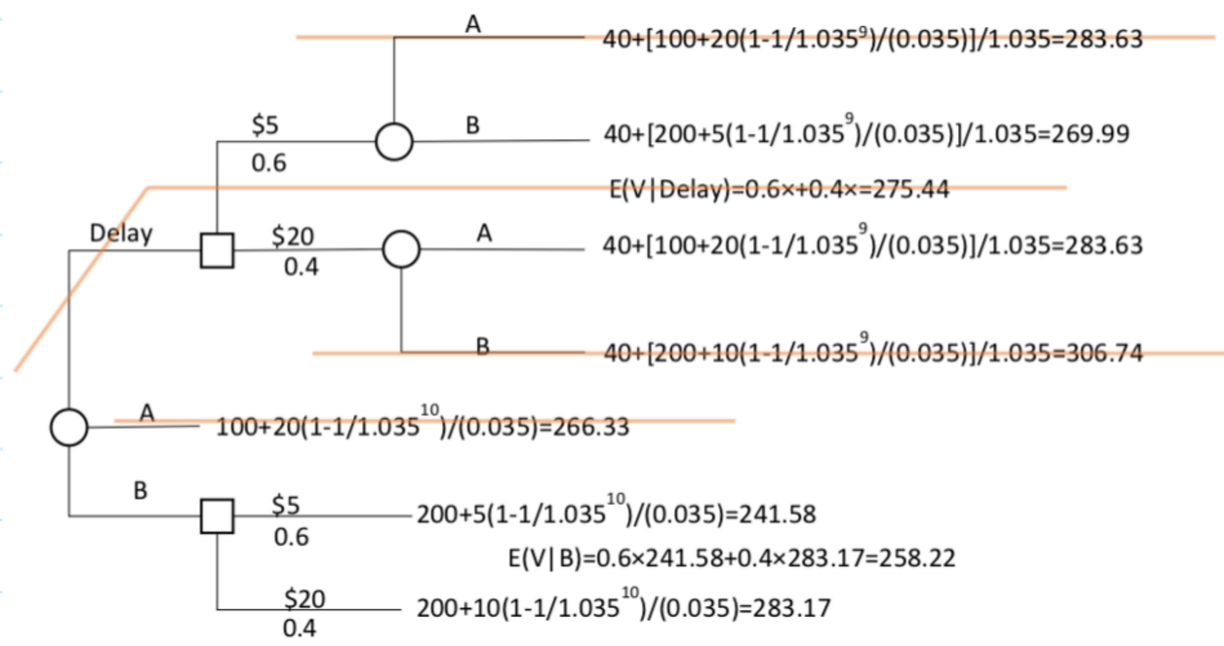
Passed solution review

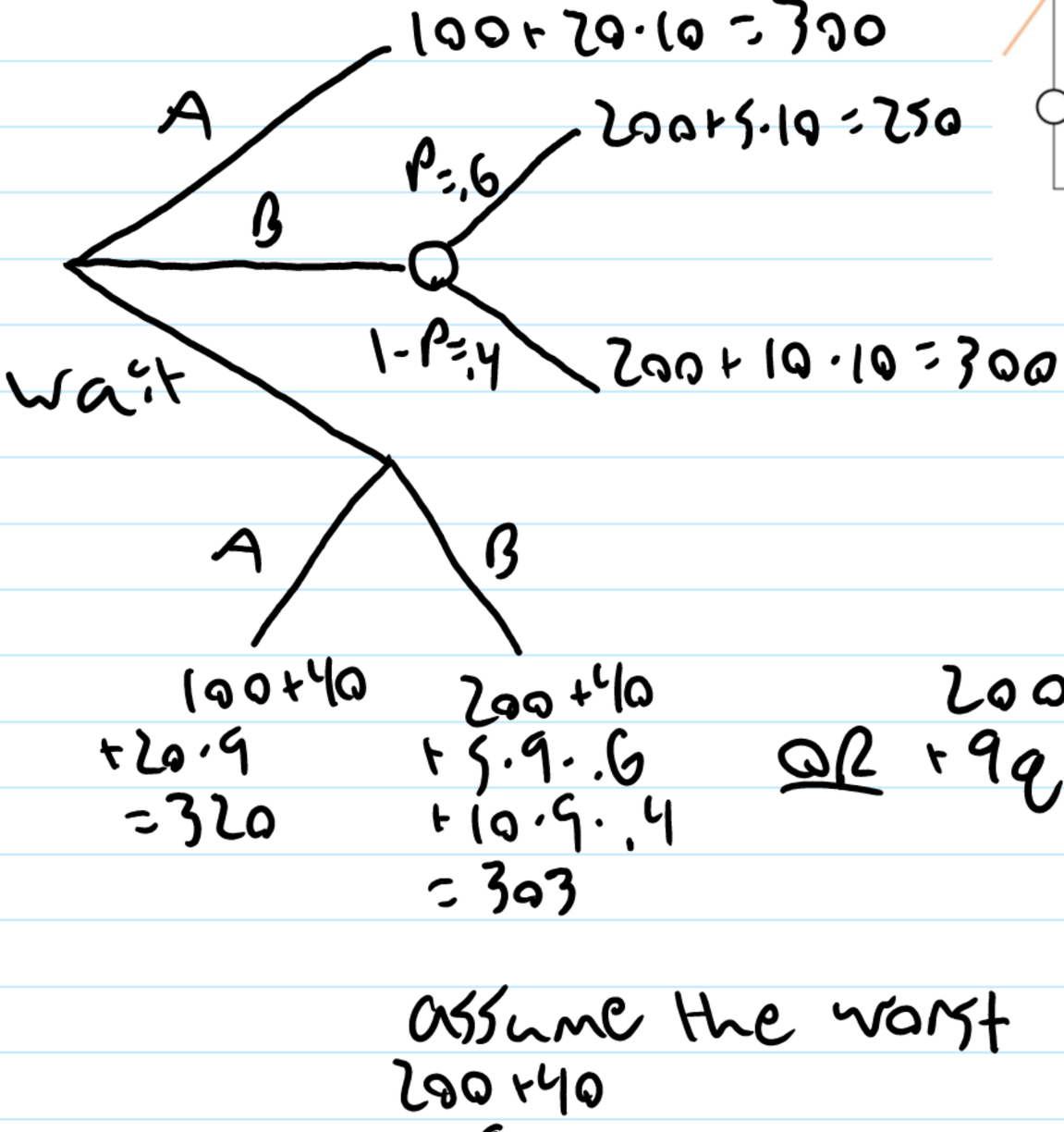
The sheriff's department is upgrading its information management system. They have a choice between system A and system B. System A will cost them $100 up front and $20 per year over 10 years. System B will cost $200 up front and then each year for 10 years will cost $5 with probability 0.6 or else $10. Alternatively, they could pay $40 to keep their current system working one more year, at which time it would be known whether the annual cost of system B is $5 or $10. If they delay one year, the up front cost would still be the same, but they would only get 9 years of service from the new system.

a) Draw the extensive form game against nature.



Did this all wrong
Put nature in the wrong spot
Then didn't do math for nature
Started doing game theory but it's not





200+40
OR +9q where q = 10 or 5 depending

Assume the worst
200+40
+10·9
=330

assume the best
200+40
+5·9
=285

b) What should they do at what time?

They should buy now as their maximum cost is less than the expected later costs. Max B = A so there's no reason not to get B and hope it's $5/year