

**Problem 1:** Jessie and Alex are on Timber<sup>1</sup>. They like each other, but neither wants to make the first move and give the other person the upper hand. If neither person messages the other, both get a payoff of 0 units of happiness. If one person messages and the other doesn't, the sender receives 3 units of happiness, and the receiver receives 7 units. If both Jessie and Alex message each other simultaneously, both receive 5 units of happiness.

a) Fill out the payoff matrix below:

		Alex	
		Message	Don't Message
Jessie	Message		
	Don't Message		

b) What action will Alex choose if Jessie chooses "Don't Message"? Why?

c) Find and list all Nash Equilibria. If this game has no Nash Equilibria, explain why.

d) Explain what it means to have a dominant strategy. Does Jessie have a dominant strategy? If so, what is it?

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<sup>1</sup>An online dating app for lumberjacks