

Worksheet 4: Weighted Voting Systems

Group Names: _____

1. Consider the weighted voting system [47: 10,9,9,5,4,4,3,2,2]

(a) How many players are there? _____

(b) What is the total number (weight) of votes? _____

(c) What is the quota in this system? _____

2. Five friends decide to start a small side business in their free time. Wanting to create fairness in the decision-making process, they decide to base their voting weight off the number of hours each one was working per week. Bill worked 15 hours, Tammy worked 8 hours, Dara worked 7 hours, Priyanka worked 3 hours, and Ross worked 2 hours. Any decision that their company makes requires a *majority* of the votes.

(a) Construct a weighted voting system to represent this scenario, and then determine if there are any dictators, dummies, or people with veto power.

- (b) In the previous scenario, construct a weighted voting system to represent this scenario, if the decision required $2/3$ of the votes. Then determine if there are any dictators, dummies, or people with veto power.
3. A condo community is voting to approve a 10K loan to fix the structural and foundation issues with the building. If passed, the homeowners are responsible for paying off the loan over the next five years. This would result in an increase in the homeowners' monthly HOA fee until the loan is paid off. There are 2 homeowners and 2 board members. For this measure to pass both homeowners and one board member must vote yes. Determine a weighted voting system to represent this scenario. Time permitting, decide if there are any dictators, dummies, or people with veto power.