

Compensation Worksheet #4
October 29, 2018
2 Points

Circle one name.

Name: Solutions

Name: _____

Name: _____

Carry out the Adjusted Winner Procedure.

1 = get item
 0 = don't get item

s = share item
 (percent being
 awarded/shared)

bigger #
 / smaller #

item	1/0/s	bids Alice	1/0/s	bids Bob	point ratio
Ring	* s = .6	45	* (1-s) = .4	40	$\frac{45}{40} = 1.125$
Desk	* 0	21	* 1	20	$\frac{21}{20} = 1.05$
TV	0	5	1	20	$\frac{20}{5} = 4$
Sofa	1	29	0	20	$\frac{29}{20} = 1.45$
Totals for Items Received		95 56		20 56	

Add/remove
 rows as
 needed based
 on # of items

Transfer Equation

* items won by person 1 + item shared * s = items won by person 2 + item shared (1-s)
 sofa → 29 + 45s = TV and Desk → 40 + 40(1-s)

$$\begin{aligned}
 29 + 45s &= 40 + 40 - 40s \\
 29 + 45s &= 80 - 40s \\
 29 + 85s &= 80 \\
 85s &= 51 \\
 s &= \frac{51}{85}
 \end{aligned}$$

→ s = 0.6
 > check <

$$\begin{aligned}
 29 + 45 \times 0.6 &= 40 + 40(1 - 0.6) \\
 29 + 27 &= 40 + 16 \\
 56 &= 56 \quad \checkmark
 \end{aligned}$$

Adjusted Winner Method:

- Each person distributes 100 points among all items
- Assign each item to largest bidder
- Total the bids of the items won by each person
- Find point ratios: $\frac{\text{bigger bid}}{\text{smaller bid}}$
- If totals are not equal, try to transfer item with small point ratio from winner to loser
 - If new totals are equal or if the person with more points still has more points, transfer entirely
 - If equal, stop.
 - If not equal, repeat step 5
 - If new totals give the person who initially had fewer points more than the person who initially had more points, use the transfer equation and find the % of the item each person gets (s and 1-s)