

Chapter 21 homework solutions

from chapter 20:

5). X got trimmed piece, Y got an untrimmed piece.

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|-----|---------|-----------------|
| (1) | A, X, Y | X could envy A |
| (2) | A, Y, X | Y could envy A |
| (3) | X, A, Y | No envy |
| (4) | X, Y, A | Y could envy X |
| (5) | Y, A, X | A could envy Y |
| (6) | Y, X, A | X could envy Y. |

arrangement (3) guarantees no envy, and is the only ordering that does so. The only chance of envy would be that A could envy X. But since X got the trimmed piece, then in A's view, X could get all the trimmings, and still only have what A got in round 1. So A will not envy X.

from chapter 21:

1)

	1 st	2 nd	3 rd	4 th
A	.5	.3	.10	.1
B	.25	.4	.05	.3
$\frac{v_i}{b_i}$	2	$\frac{3}{4}$	2	$\frac{1}{3}$

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|------|---------------------------------------|-----------------------|-----------------------|
| | 1 st + 3 rd (2) | 2 nd (3/4) | 4 th (1/3) |
| (i) | r=2 | • | • |
| (ii) | r=2 | • | • |
| (iv) | r=2 | • | • |
| (vi) | r=2 | • | • |

(i), (ii), (iv) and (vi) are all Threshold divisions

(iii), and (v) are not Threshold divisions

2) Since an equal division gives part of each component to each player, for it to be a threshold division, the valuation ratios would have to all be the same, so the dots would be arranged vertically, and a threshold line could be drawn through them all.