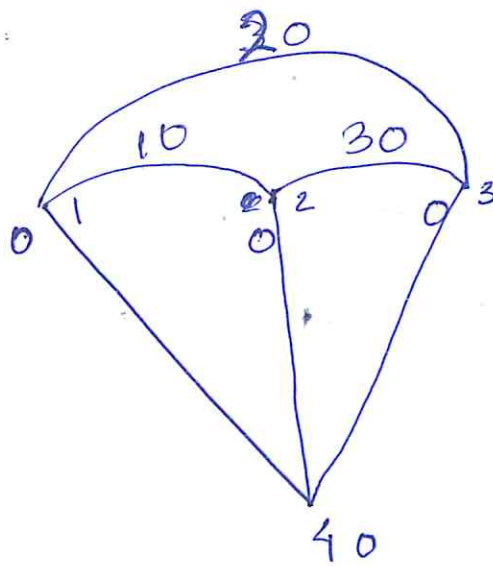
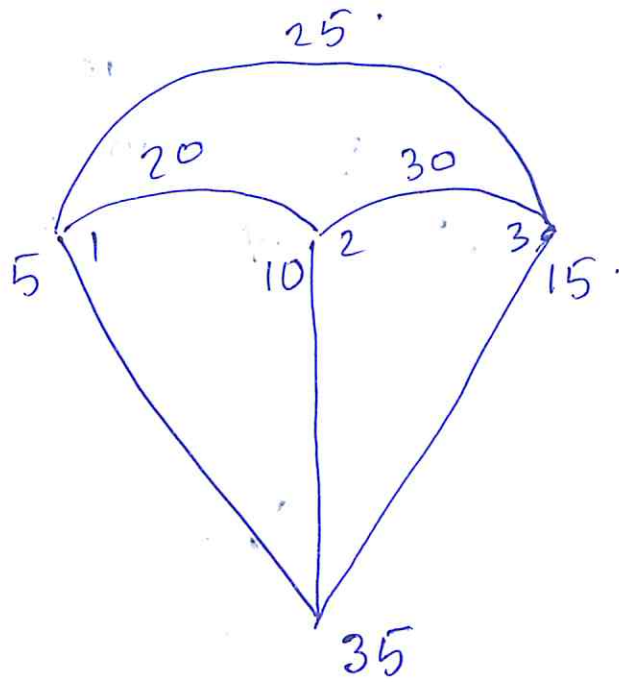


①



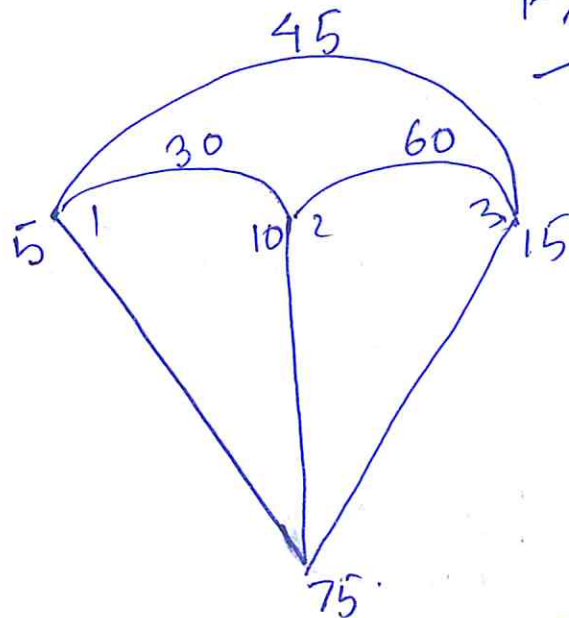
$(N; u)$.

Fig 1



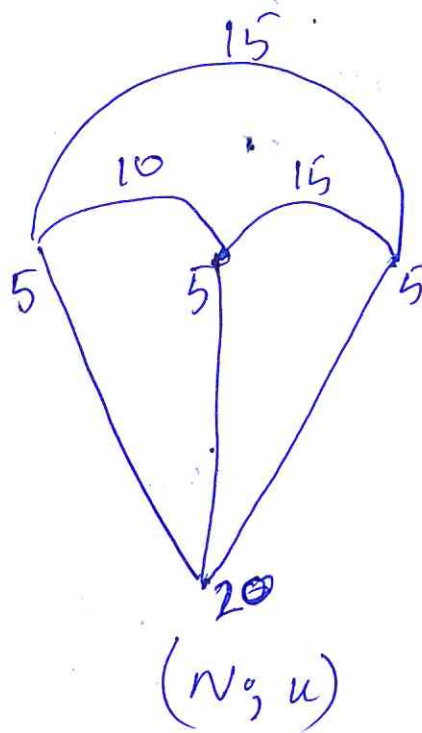
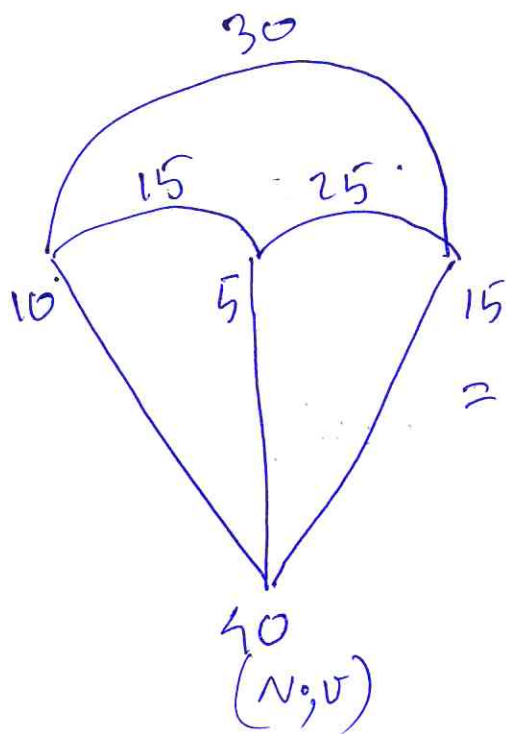
$(N; u)$

Fig 2

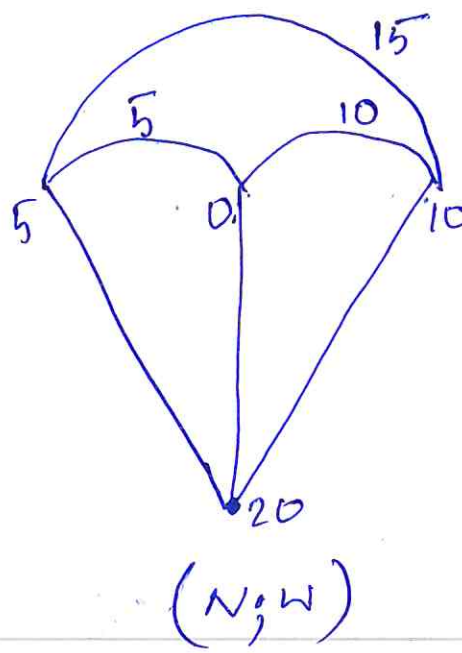


$(N; v)$

Fig 3



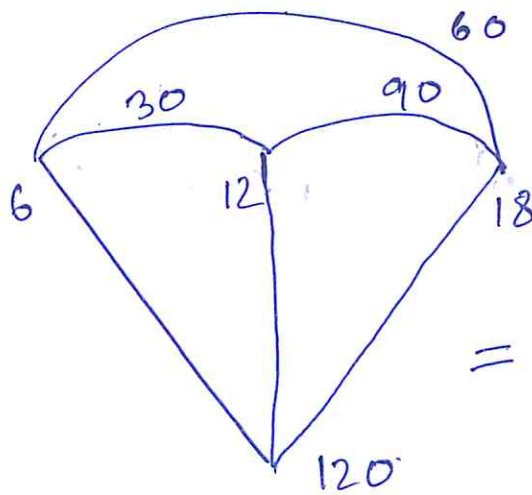
+



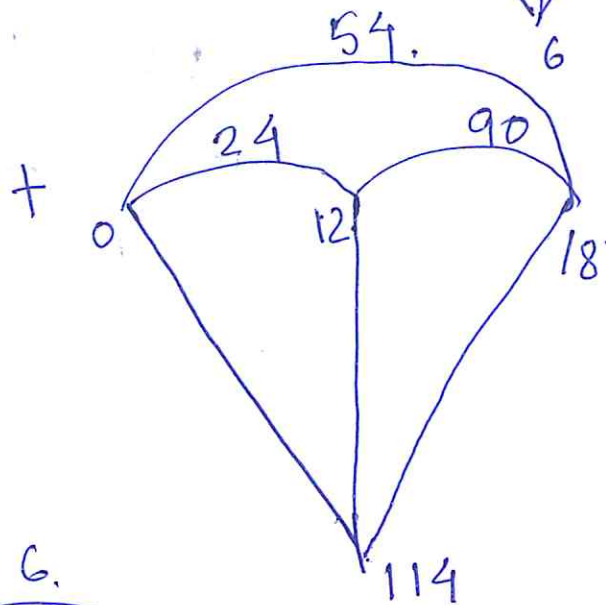
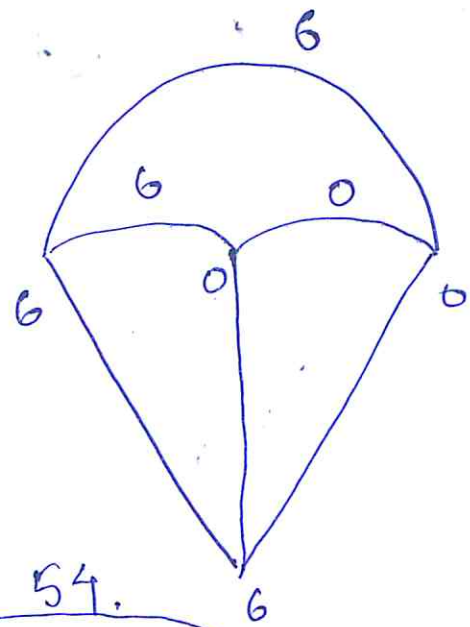
- A split $(N; v)$ into
 $(N; u)$ and $(N; w)$.

Fig 4

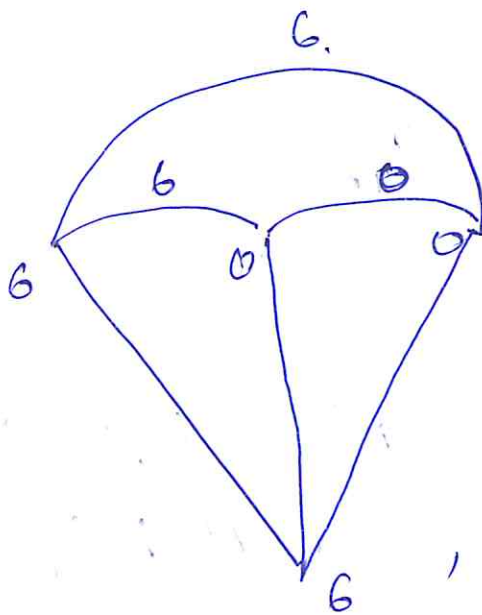
Consider the game



=

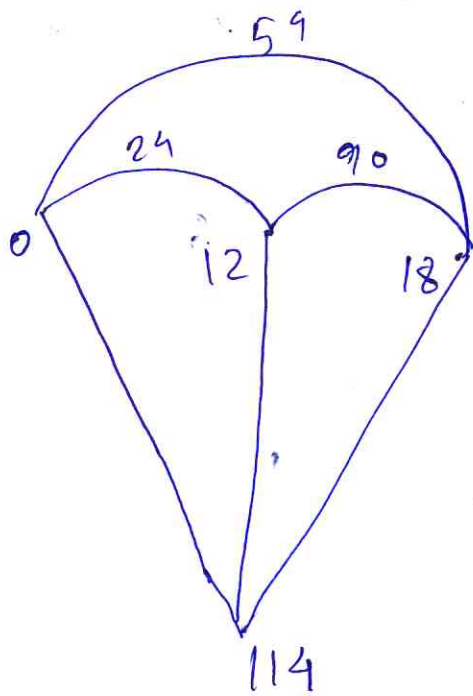


In

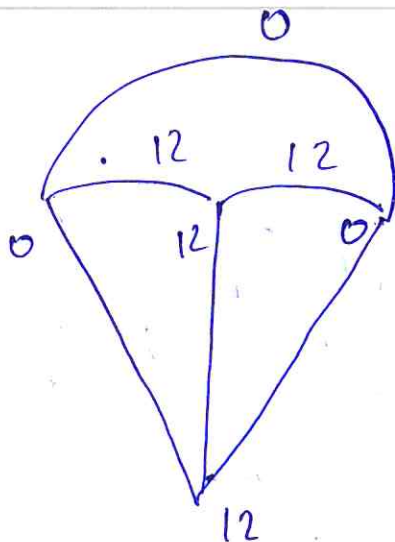
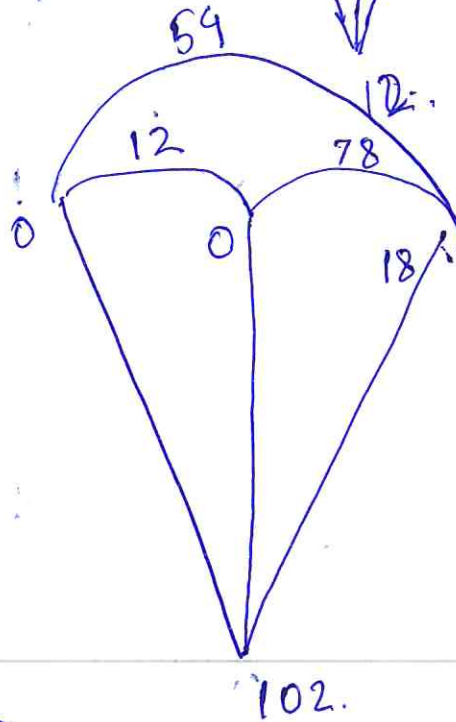
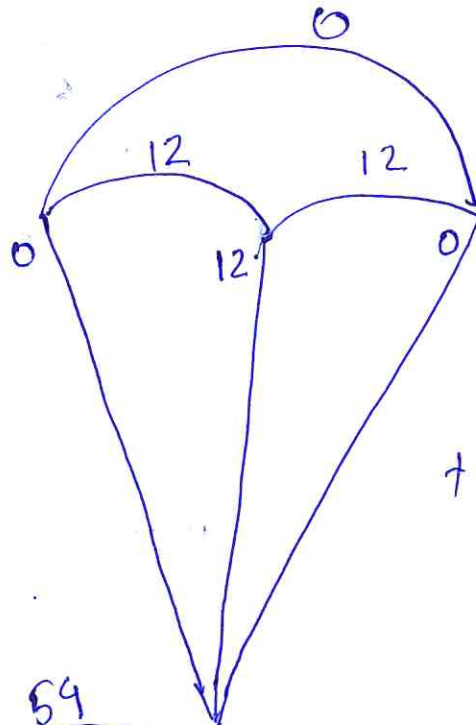


players 2, 3 are
null players.

Division is
(6, 0, 0)



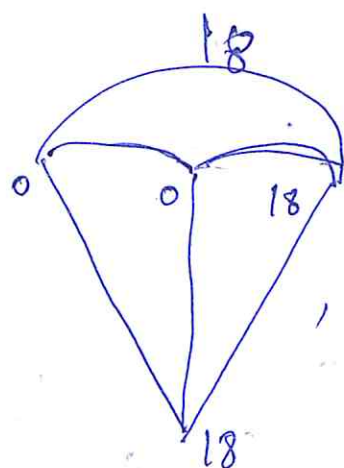
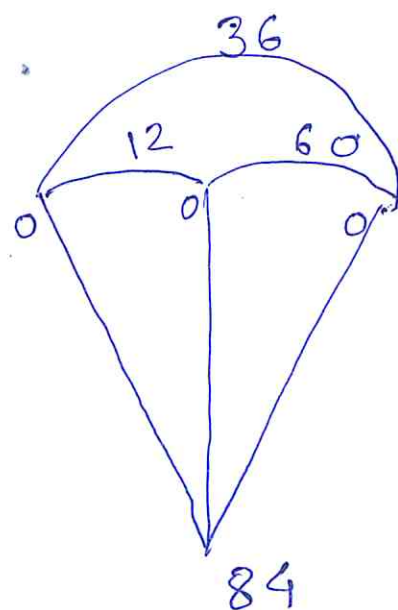
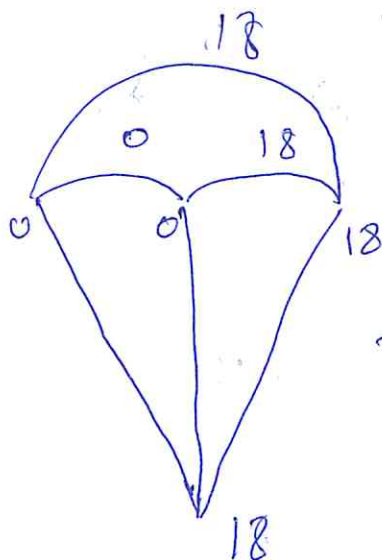
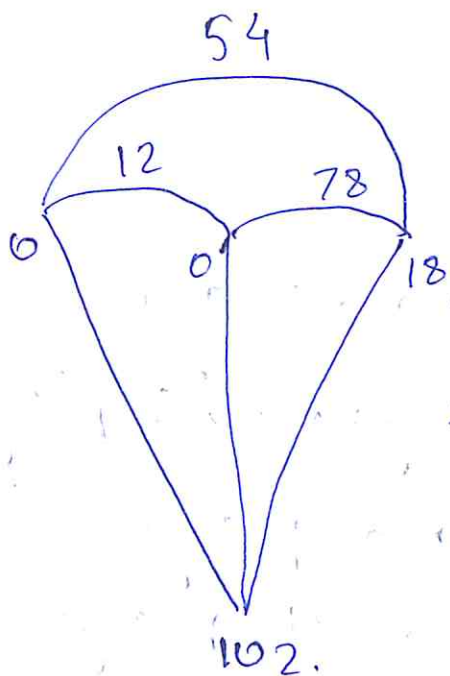
2



Player 1, 3 are
null players.

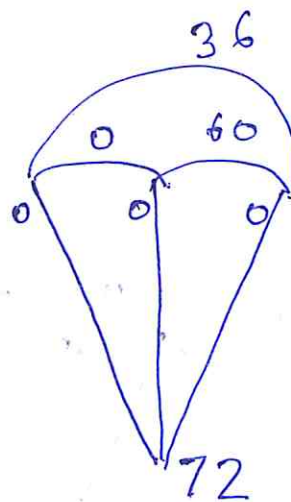
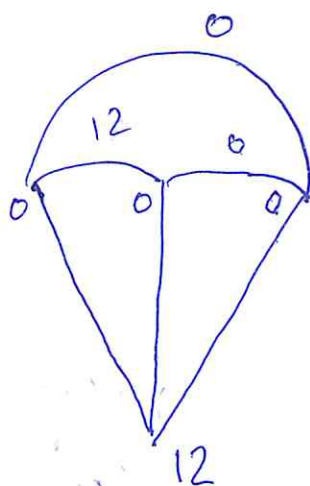
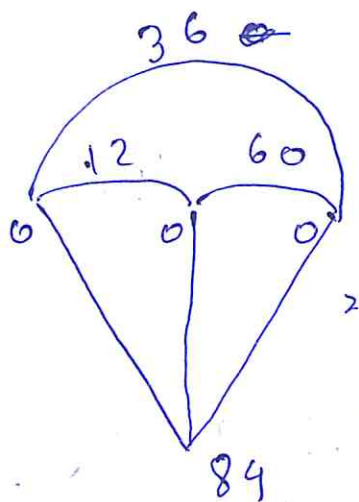
Shut-in is
 $(0, 12, 0)$.

2

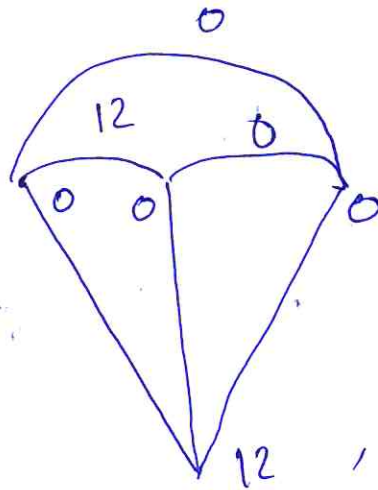


, Player 1, 2 are null players

① Solution is $(0, 0, 18)$.



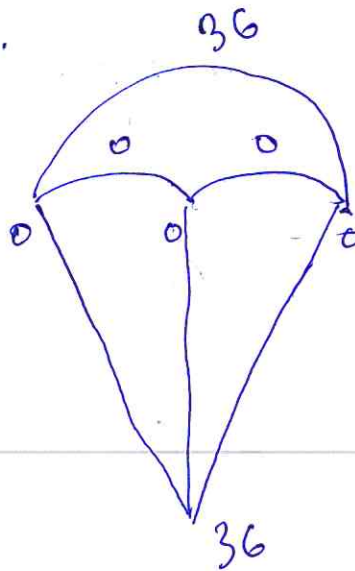
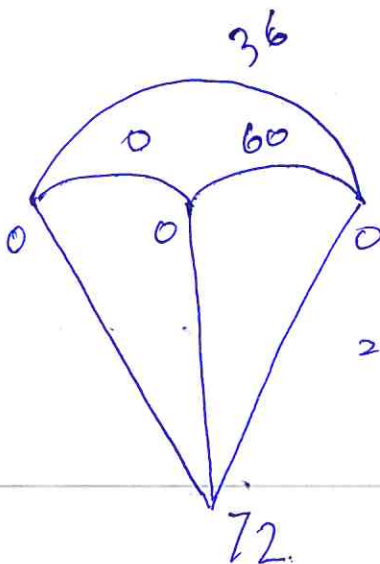
L_n



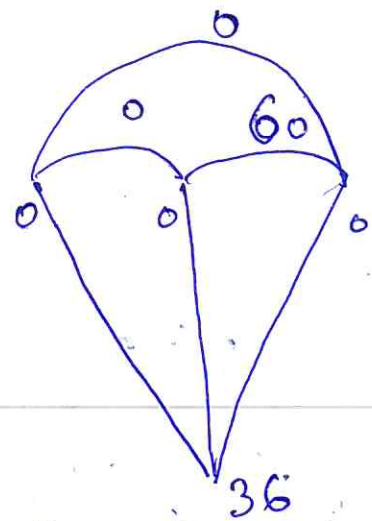
1 and 2 are
symmetric players
and player 3 is
null player.

so division is

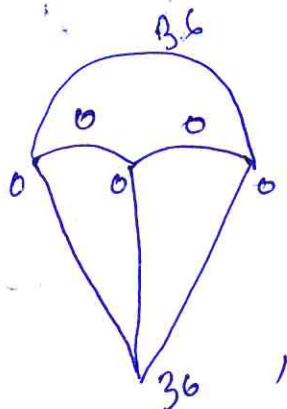
$$(6, 6, 0)$$



+



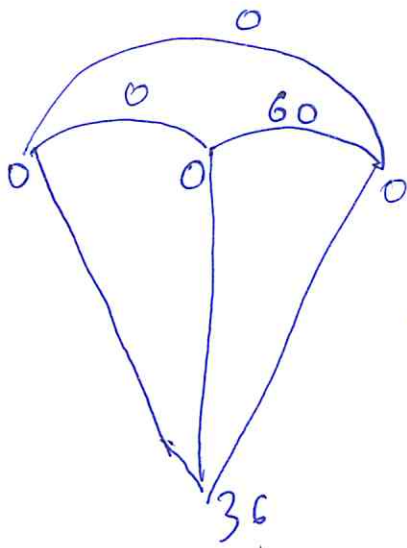
L_n



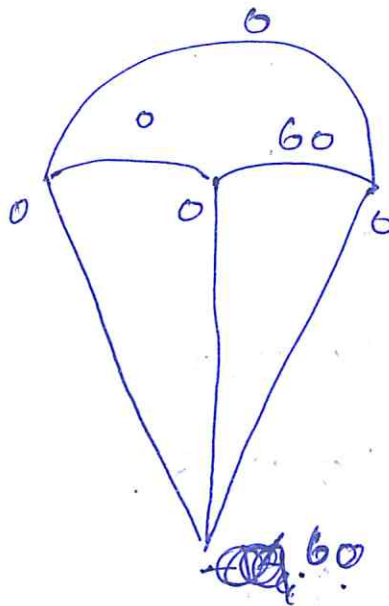
player 1, 3 are symmetric
players. player 2 is a
null player.

So $(18, 0, 18)$

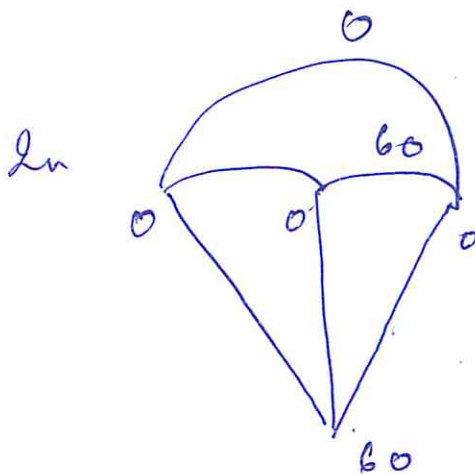
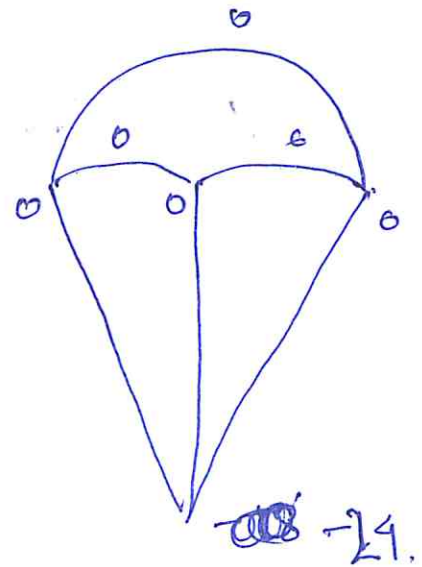
(4)



2

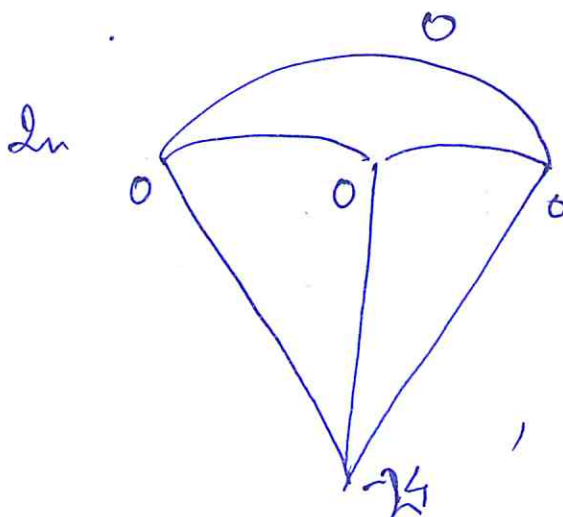


+



players 2 and 3
are symmetric players
player 1 is null player

so. Division is
 $(0, 30, 30)$.



players 1, 2, and 3 are
symmetric.
so the division is
 $(-24/3, -24/3, -24/3)$.

Divisions are:

$$(6, 0, 0)$$

$$(0, 12, 0)$$

$$(0, 0, 18)$$

$$(6, 6, 0)$$

$$(18, 0, 18)$$

$$(0, 30, 30)$$

$$\left(\frac{24}{3}, \frac{24}{3}, \frac{24}{3}\right)$$

$$= \left(\begin{array}{l} 6 + 0 + 0 + 6 + 18 + 0 - \frac{24}{3}, \quad 0 + 12 + 0 + 6 + 0 + 30 - \frac{24}{3} \\ 6 + 0 + 18 + 0 + 18 + 30 - \frac{24}{3} \end{array} \right)$$

$$= (22, 40, 58): \text{Shapley Value}$$