

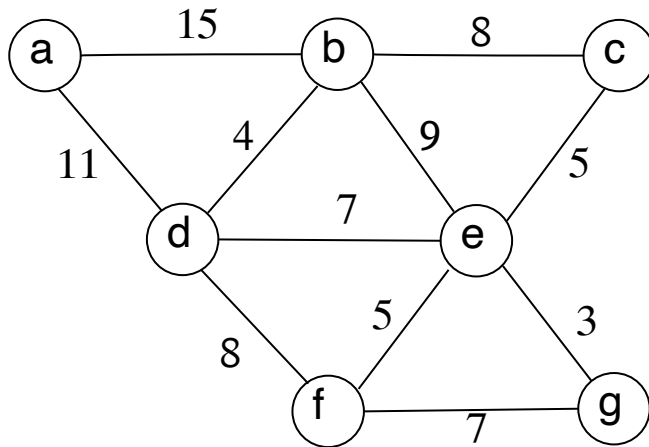
## CSE 5319/6319 Homework 4

Due April 19, 5:00 p.m. on Canvas

- KP p. 266, problem 14.18.
- Similar to p. 25-26 of `notes03.2.mech.pdf`, analyze the Allocation Algorithm for Downward Sloping Valuations for following  $v_i(k)$  values for buyer  $i$ . Note that  $v_i(k) = v_{i1} + v_{i2} + \dots + v_{ik}$ . The result is a table of clearing prices and allocations like the one at the top of p. 26.

|     |   | $k$      |    |     |     |     |     |     |     |     |   |
|-----|---|----------|----|-----|-----|-----|-----|-----|-----|-----|---|
|     |   | $v_i(k)$ | 0  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8 |
| $i$ | 1 | 0        | 50 | 100 | 143 | 182 | 219 | 243 | 257 | 269 |   |
|     |   |          | 50 | 50  | 43  | 39  | 37  | 24  | 14  | 12  |   |
| $i$ | 2 | 0        | 70 | 135 | 188 | 223 | 256 | 286 | 311 | 321 |   |
|     |   |          | 70 | 65  | 53  | 35  | 33  | 30  | 25  | 10  |   |
| $i$ | 3 | 0        | 60 | 115 | 160 | 200 | 235 | 265 | 289 | 306 |   |
|     |   |          | 60 | 55  | 45  | 40  | 35  | 30  | 24  | 17  |   |

- Compute the VCG payments for the minimum spanning tree for this graph.



- Determine the optimal fixed price for the following bids for copies of a digital good:

10 10 10 9 9 8 8 8 7 7 6 6 4 4 4 4 4 3 3 3