Discussion 7

BC574)- v_i weakly dominates lower bids because bidding lower only affects probability of winning, not amount paid.
- v_i does not weakly dominate higher bid because, for example, you would want to bid high if:
  $v_n < v_i < v_j$
- Bid valuation not Nash because bidder 2 deviates.
- Symmetric Nash at $b_i = v_i$.

BC575) Single-object yield revenue $16+10+12 = 38$
Sundled-object yield revenue $16+28 = 44$

3) 2 player, either buy stocks or crypto. Stocks are safe and yield r. Crypto only increases in value if other buys.
- Both buy yields $m > r$.
- One buy yiels 0.

Find mixed Nash.

		P2: Stock	P2: Crypto	
P1	Stock	r, r	r, 0	(p)
	Crypto	0, r	m, m	(1-p)
		(q)	(1-q).	

- P1 stock: $qr + (1-q)r = q \cdot 0 + (1-q)m$: P1 crypto
  $r = (1-q)m$
  $1 - \frac{r}{m} = q$.
- P2 symmetric.

Equilibrium: $\left(\left(1-\frac{r}{m}, \frac{r}{m}\right), \left(1-\frac{r}{m}, \frac{r}{m}\right)\right)$.

4) There are 22 index cards. P1 can remove either 1 or 2, then P2 remove either 1 or 2, so on. Winner removes last card. Who has winning strategy?

↳ 3 stars left (other player move) is winning scenario.
↳ So is 6, 9, 12, 15, 18, 21.
↳ So P1 has winning strategy (must remove 1 first).

midterm) V1

2a) (up down)
b) Both do.
c) b>c
d) s < c

3a) 360, 370, 360, 370, yes
b) 440, 470, 470, 500, yes
c) No

4a) $q_i = \frac{120 - q_{-i}}{3}$
b) (30, 30)
c) 1350
d) 2400

V2

same as V1

$q_i = \frac{100 - q_i}{5}$
(16.7, 16.7)
694.4
1000