

Math 1015 HW #2

#16, 2, 3, 5

#16

1	2	1	1	4	pts
R	W	D	D	P	3
D	R	R	R	W	2
W	D	P	W	D	1
P	P	W	P	R	0

$$R: 1 \times 3 + 2 \times 2 + 1 \times 2 + 1 \times 2 + 4 \times 0 = 3 + 4 + 2 + 2 = 11$$

$$D: 1 \times 2 + 2 \times 1 + 1 \times 3 + 1 \times 3 + 4 \times 1 = 2 + 2 + 3 + 3 + 4 = 14$$

$$W: 1 \times 1 + 2 \times 3 + 1 \times 0 + 1 \times 1 + 4 \times 2 = 1 + 6 + 0 + 1 + 8 = 16$$

W wins!

$$P: 1 \times 0 + 2 \times 0 + 1 \times 1 + 1 \times 0 + 4 \times 3 = 0 + 0 + 1 + 0 + 12 = 13$$

#2

48	34	27	24	21	16	11	5	4
Pel	Pal	B	Pel	Pal	B	B	Pel	Pal
B	B	Pal			Pel		Pal	Pel
Pal	Pel	Pel			Pal		B	B

(Pel) v (Pal)

$$Pel: 48 + 24 + 16 + 5 = 93$$

$$Pal: 34 + 27 + 21 + 4 = 86$$

Pel v (B)

$$Pel: 48 + 24 + 5 + 4 = 81$$

$$B: 34 + 27 + 16 + 11 = 88$$

(B) v (Pal)

$$B: 48 + 27 + 16 + 11 = 102$$

$$Pal: 34 + 21 + 4 + 5 = 64$$

B is Condorcet winner!

#3 a Many good answers here. The best would state that the voters in AK liked Begich better than Palin, and they also liked Begich better than Peltola. So Begich shouldn't have lost.

b No, the same can't be said for Palin. People liked Begich better than Palin, so you can't say Palin should've won using the same arguments.

#5

375	282	85	83	82	47	35	31	29
M	C	L	M	C	C	L	L	M
L		M		L	M		C	C

(M) v L: $M: 375 + 83 + 29 + 47 = 534$
 $L: 85 + 35 + 31 + 82 = 233$

(M) v C: $M: 375 + 83 + 29 + 85 = 572$
 $C: 282 + 82 + 47 + 31 = 442$

(L) v C: $L: 375 + 85 + 35 + 31 = 527$
 $C: 282 + 82 + 47 + 29 = 440$

M wins
Condorcet