

10.

Rank	V1	V2	V3	V4	V5	V6	V7	V8	V9
First	A	A	A	A	B	B	C	C	D
Second	D	D	D	B	C	C	B	D	C
Third	B	B	B	C	D	A	D	B	B
Fourth	C	C	C	D	A	D	A	A	A

a) plurality: **A wins.**

b) Borda

A:  $4*3 + 0*2 + 1*1 = 13$

B:  $2*3 + 2*2 + 5*1 = 15$

C:  $2*3 + 3*2 + 1*1 = 13$

D:  $1*3 + 4*2 + 2*1 = 13$  **B wins.**

c) Hare

Round 1: eliminate D

Round 2: eliminate B

Round 3: eliminate A **C wins.**

d) Sequential pairwise with agenda A, B, C, D.

A vs. B: B wins 5 to 4.

B vs. C: B wins 6 to 3.

B vs. D: D wins 5 to 4. **D wins.**

12.

Rank	V1	V2	V3	V4	V5	V6	V7	V8
First	A	A	E	E	A	B	C	D
Second	B	B	B	B	D	E	E	E
Third	C	C	D	D	C	C	D	A
Fourth	D	D	C	C	B	D	A	B
Fifth	E	E	A	A	E	A	B	C

a) plurality: **A wins.**

b) Borda:

A:  $3*4 + 0*3 + 1*2 + 1*1 = 15$

B:  $1*4 + 4*3 + 0*2 + 2*1 = 18$

C:  $1*4 + 0*3 + 4*2 + 2*1 = 14$

D:  $1*4 + 1*3 + 3*2 + 3*1 = 16$

E:  $2*4 + 3*3 + 0*2 + 0*1 = 17$  **B wins.**

c) Hare system:

Round 1: Eliminate B, C, and D.

Round 2: Eliminate A. **E wins.**

d) Sequential pairwise voting with agenda B, D, C, A, E.

B vs. D: B wins 5 to 3.

B vs. C: B wins 6 to 2.

B vs. A: A wins 5 to 3.

A vs. E: E wins 5 to 3. **E wins.**

14.

Rank	V1	V2	V3	V4	V5	V6	V7
First	A	A	B	B	A	C	D
Second	D	D	D	D	B	B	B
Third	C	C	A	A	D	D	A
Fourth	B	B	C	C	C	A	C

a) plurality: **A wins.**

b) Borda:

A:  $3*3 + 0*2 + 3*1 = 12$

B:  $2*3 + 3*2 + 0*1 = 12$

C:  $1*3 + 0*2 + 2*1 = 5$

D:  $1*3 + 4*2 + 2*1 = 13$  **D wins.**

c) Hare:

Round 1: eliminate C and D.

Round 2: eliminate A **B wins.**

d) sequential pairwise voting with agenda B, D, C, A.

B vs. D: B wins 4 to 3.

B vs. C: B wins 4 to 3.

B vs. A: B wins 4 to 3. **B wins.**

17.

Rank	V1	V2	V3	V4	V5	V6	V7
First	C	D	C	B	E	D	C
Second	A	A	E	D	D	E	A
Third	E	E	D	A	A	A	E
Fourth	B	C	A	E	C	B	B
Fifth	D	B	B	C	B	C	D

a) Coombs procedure.

Round 1: eliminate B (most last place votes).

Round 2: eliminate C.

Round 3: eliminate E.

Round 4: eliminate A. **D wins.**

b)

Rank	V1	V2
First	A	C
Second	B	B
Third	C	A

Coombs: B wins.

Hare: a tie between A and C.

35.

Candidate	# votes
A	7
B	8
C	2
D	9
E	5
F	8
G	6
H	5

- a) D wins.
- b) A, B, D, F.
- c) B, D, F.
- d) A, B, D, F.

36.

Nominee	# votes
A	23
B	21
C	19

- a) A wins.
- b) B is runner-up.
- c) There is no difference between “abstain” and “vote for everyone.”