Plurality by elimination

Question: An office of 100 people has a vote for a company provided lunch. They can choose Pizza (P), Mexican (M), or Chinese (C). Their votes are recorded below in a preference table. Based on elimination by plurality, who wins?

Total	5	30	25	15	13	12
1st	P	P	M	M	C	C
2nd	M	C	P	C	P	M
3rd	C	M	C	P	M	P

Plurality by elimination

Question: An election results in the following preference table. Who is the winner of the election using the plurality method?

	2	3	3	4
1st choice	*A*	*A*	*O*	*H*
2nd choice	*O*	*H*	*H*	*A*
3rd choice	*H*	*O*	*A*	*O*

Question: Three candidates are running in an election for County Executive: Goings (*G*), McCarthy (*M*), and Birney (*B*). The voting schedule is shown below. Which candidate wins under the plurality method?

	33	25	19	81	60	29
1st choice	*G*	*G*	*G*	*M*	*B*	*B*
2nd choice	*M*	*B*		*G*	*M*	
3rd choice	*B*	*M*		*B*	*G*	

Question: People in a focus group are asked to rate new flavors A-E from 1st choice (best) to 5th choice (worst). Based on elimination by plurality, what should the company choose as its next flavor?

Total	7	6	2	5
1st	A	B	B	C
2nd	B	A	A	A
3rd	C	E	D	E
4th	D	D	C	D
5th	E	C	E	B

Plurality & plurality w/ elimination

Pizza, Mexican, or Chinese (plurality w/ elimination)

Total Votes

5
30
25
15
13
12

100

$\text{Total}_P = 5 + 30 = 35$

$\text{Total}_M = 25 + 15 = 40$

$\text{Total}_C = 13 + 12 = 25$

by plurality Mexican wins

Notice $\frac{40}{100} = 40\%$, not a majority

so, eliminate C, the lowest vote

P vs M

P
M

$5 + 30 = 35$ votes

M
P

$25 + 15 + 12 = 52$ votes

M wins

$\frac{52}{87} \cdot 100 \approx 59.8\%$

AOH election results (plurality)

$\text{Total}_A = 2 + 3 = 5$

$\text{Total}_O = 3$

$\text{Total}_H = 4$

Total = 2, 3, 3, 4

12

A wins with 5 votes, but not a majority

$\frac{5}{12} \cdot 100 \approx 41.7\%$

County Executive Election — plurality method:

Total votes: 33, 25, 19, 81, 19, 60, 29 → 266

Total $_G$ = 33 + 25 + 19 = 77

Total $_B$ = 60 + 29 = 89

Total $_M$ = 81 + 19 = 100

by plurality, M wins

$\frac{100}{266} \cdot 100 \approx 37.6\%$

But not a majority

Flavor Focus Groups — plurality w/elimination

Total votes = 20

Total $_A$ = 7 | Total $_B$ = 6 + 2 = 8 | Total $_C$ = 5 | Total $_D$ = 0 | Total $_E$ = 0

1st choice

A = 7, B = 0, C = 5 eliminate

Eliminate

A / B Total = 7 + 5 = 12

B / A 6 + 2 = 8

A wins w/majority

$\frac{12}{20} \cdot 100 = 60\%$