

The Maths of Voting Masterclass Worksheet 3 – Borda

Instead of just putting down their favourite pizzas (or their first preferences), each family member has ranked their preferences, based on the four toppings available. You can see these rankings below.

Start by determining how many points each of the preferences gets. Once you know this, calculate the number of points each pizza topping gets and the one with the highest number is the winner.

Which pizza wins?

	A	B	C	D	E	F	G	H	I	J	K	L
1 st												
2 nd												
3 rd												
4 th												

Votes				
Number of 1 st votes				
Points				
Number of 2 nd votes				
Points				
Number of 3 rd votes				
Points				
Number of 4 th votes				
Points				
Total points				
Winner:				

The formulae below should be used to calculate the number of points earned by each topping. **P = 4** (the total number of options)

1st preference: $P-1 = 3$

2nd preference: $P-2 = 2$

3rd preference: $P-3 = 1$

4th preference: 0

Extension questions

Discuss with your neighbour ways you can break the tie and write them down.

Could changing the rankings of a single voter change the winner? If so, which one(s)?

Can you come up with a new way of distributing points that changes the winner?

Votes				
Number of 1st votes				
Points				
Number of 2nd votes				
Points				
Number of 3rd votes				
Points				
Number of 4th votes				
Points				
Total points				
Winner:				

Write down your new formulae below: