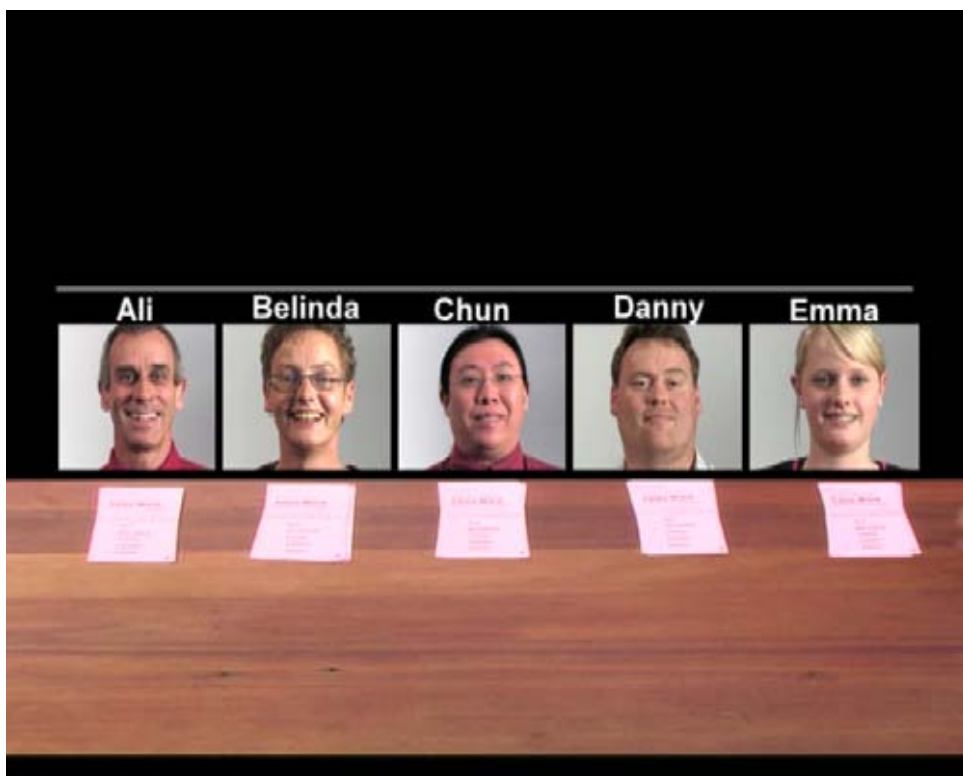


Introduction to Proportional Representation for Victorian Local Council Elections



Example proportional representation count

This booklet works through the example of a proportional representation vote count used in the *Introduction to Proportional Representation* video. At the end of this booklet you will find a count sheet for this example election similar to the ones you would see in a real election. The VEC suggests reading this booklet after or while watching the video.

Introduction

Proportional representation is a method of vote counting used where more than one candidate is to be elected. It is used for multi-councillor wards and unsubdivided municipalities in local council elections. Proportional representation is also used for the Australian Senate and the Victorian Upper House. The layout of ballot papers for local council elections (except for councillors for the City of Melbourne) does not include above and below the line voting.

The essential features of the proportional representation system used in Victorian local council elections are as follows:

- voters must record their preferences for all candidates;
- to be elected, a candidate must obtain a “quota”, which is calculated using the following formula (disregarding any remainders):

$$\frac{\text{number of formal votes}}{\text{number of vacancies} + 1} + 1 = \text{quota}$$

- when a candidate receives more votes than a quota, the surplus votes are distributed to the voters’ next preferred candidate at a reduced “transfer value”, calculated by dividing the number of surplus votes by the total number of ballot papers for the candidate;
- when all surpluses have been distributed, if there are still vacancies to be filled, votes are distributed from the lowest-scoring candidate to the voters’ next preferred candidates at the value received;
- these steps continue until all vacancies are filled.

For more information, visit www.vec.vic.gov.au or call 13 18 32.

The example

In our example, there are three vacancies. Five candidates have nominated – Ali, Belinda, Chun, Danny and Emma.

When everyone has voted, we can calculate the quota. There are 140 formal votes and 3 positions, so the quota is calculated as follows:

$$\frac{140}{3 + 1} + 1 = 36$$

To be elected, a candidate must receive 36 or more votes.

Firstly, we count the first preference votes for each candidate, that is, how many votes have the number “1” beside each candidate’s name.

Belinda has 48 first preference votes, which is more than the quota, so she is elected straight away.

There are still two vacancies to fill. Since none of the other candidates has more votes than the quota, no-one else can be elected yet.

The next step is to transfer Belinda’s surplus. Belinda has 12 more votes than the quota, so her surplus is 12 votes. The votes for Belinda are distributed according to the second preferences, that is, according to which candidate has the number “2” next to them on the ballot paper. But the votes are distributed at a reduced value. The “transfer value” varies depending on the surplus and the number of ballot papers. We calculate the “transfer value” as follows:

$$\frac{\text{surplus}}{\text{total number of ballot papers}} = \frac{12}{48} = \frac{1}{4}$$

All of the first preference votes for Belinda are passed on to the voters’ second preferences at a value of $\frac{1}{4}$ of a vote each.



As a result, Chun now has 40 votes, which is more than the quota, so Chun is elected.

No other candidates have more votes than the quota, so there is still one more vacancy to fill.

Next we transfer Chun’s surplus. In this case, the transfer value is less than Belinda’s because the surplus is smaller and there are more ballot papers (32 from first preferences and 32 at reduced value from Belinda’s surplus). So the transfer value for Chun’s votes is:

$$\frac{4}{64} = \frac{1}{16}$$

All of the votes for Chun are passed on to the voters’ next preferred candidates with a value of $\frac{1}{16}$ of a vote.

That adds to the other candidate's totals, but is not enough for anyone to achieve a quota. There are no more surpluses to transfer, so now we must exclude a candidate.

We exclude the candidate with the fewest votes, which in this case is Emma. All of her votes are passed on to the next preferred candidate at the value they were received.

Emma received 14 first preference votes. These ballot papers are passed on to the next preferred of the remaining candidates (Ali or Danny) at full value.

Emma also received 16 ballot papers from Chun when his surplus was transferred. But these votes were received at reduced value of $\frac{1}{16}$ of a vote each, so they are passed on at that same value.

All of those voters preferred Danny to Ali, so all 16 ballot papers are passed on to Danny. They are passed on at a value of $\frac{1}{16}$ each, so together they add 1 vote to Danny's total.

Now Danny has reached the quota, so he is the third candidate elected. All vacancies have now been filled.



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Distribution Report

Election of 3 Councillors

Formal Ballot Papers included in count: 140

Informal Ballot Papers: 0

Total Ballot Papers: 140

Quota: 36

Count No.	Count Details	Transfer Value		CANDIDATES					Gain/Loss	Exhausted	TOTAL	Candidates elected at this count
				ALI	BELINDA	CHUN	DANNY	EMMA				
1	1st Preferences	1		24	48	32	22	14			140	BELINDA
2	Surplus of BELINDA 48 ballot papers distributed	1/4	BPs*	12	-48	32	4	0		0		
			Value	3	-12	8	1	0	0	0		
			PTotal†	27	36	40	23	14	0	0	140	CHUN
3	Surplus of CHUN 64 ballot papers distributed	1/16	BPs	0		-64	48	16		0		
			Value	0		-4	3	1	0	0		
			PTotal	27	36	36	26	15	0	0	140	
4	Exclusion of EMMA 14 ballot papers from count 1	1	BPs	5			9	-14		0		
			Value	5			9	-14	0	0		
			PTotal	32	36	36	35	1	0	0	140	
5	Exclusion of EMMA 16 ballot papers from count 3	1/16	BPs	0			16	-16		0		
			Value	0			1	-1	0	0		
			PTotal	32	36	36	36	0	0	0	140	DANNY

* ballot papers

† progressive total