

## Borda Count Example

In an election, 30% of the voters preferred A to B and B to C; 45% preferred B to A and A to C. The remaining 310 voters preferred C to A and A to B.

(a) How many people voted in the election?

Solution. We have 30% voting (A,B,C) and 45% voting (B,A,C). This leaves  $100 - (30 + 45)\% = 25\%$  left. We are told that there are 310 voters left. So the question becomes: 310 is 25% of what? Let  $T$  be the total number of voters. We want to solve for  $T$ :

$$310 = 0.25T$$

Since  $0.25 = \frac{25}{100} = \frac{1}{4}$ , we want to solve

$$310 = \frac{1}{4}T$$

$$4(310) = 4\left(\frac{1}{4}T\right)$$

$$1240 = T.$$

So there were 1240 voters total.  $\blacktriangle$

(b). How many Borda points would A receive?

Solution. We first determine how many voters submitted each preference ballot:

voting (A,B,C): 30% of the total =  $0.30 * 1240 = 372$ .

voting (B,A,C): 45% of the total =  $0.45 * 1240 = 558$ .

Remember that A gets 3 points for each (A,B,C) ballot, 2 points for each (B,A,C) ballot, and 2 points for each (C,A,B) ballot. So A earns:

$$372 * 3 + 558 * 2 + 310 * 2 = 2852 \text{ Borda pts. } \blacksquare$$