



Round 2 Section 3 - Case Study Information Pack

Section 3: Case Study – Tally Up

Relates to Questions 17-27

Time Allocated: 36 minutes.

INTRODUCTION

An election has been held for the Congress in the fictional country of Excelstan. Excelstan is a small country and is divided into 9 Districts, named after letters of the Greek alphabet. Each District elects one member to Congress. There are 1000 voters. Each voter is assigned a District Code based on where they live. The District Code is a number between 105 and 194 and determines what District the voter votes for.

District Code	District
105 - 114	<i>Alpha</i>
115 - 124	<i>Beta</i>
125 - 134	<i>Gamma</i>
135 - 144	<i>Delta</i>
145 - 154	<i>Epsilon</i>
155 - 164	<i>Zeta</i>
165 - 174	<i>Eta</i>
175 - 184	<i>Theta</i>
185 - 194	<i>Iota</i>

There are 8 political parties in Excelstan competing for seats in the Congress.

The parties are *Red, Orange, Yellow, Green, Blue, Purple, Brown and Black*.

Voters cast their ballot by numbering 1 against their first choice. After this, they can choose to provide preferences by numbering 2 against their second choice, 3 against their third choice, and so on up to 8 against their eighth choice. Voters can choose how far down they give preferences to. In the data provided, every voter has voted for either 4, 5, 6, 7 or 8 parties in preferential order.

When counting votes, if a voter has not provided a preference number against a particular party, assume they gave that party an 8 (i.e. they ranked any unmarked party equal last).

Each District is counted independently of the other Districts, using only the votes from that District.

COUNTING THE VOTES

Excelstan has two different systems for counting votes to determine which party wins each District.

Counting System 1: First Past The Post

Counting System 2: Points Allocation (also known as 'Eurovision style')



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COUNTING SYSTEM 1: FIRST PAST THE POST

The party with the most number of “1” votes wins. If two or more parties tie for the most number of “1” votes, then the winner is the party that received the most “2” votes (from the set of parties that tied for the most “1” votes). If there is still a tie, then count the “3” votes and so on until a winner is determined.

COUNTING SYSTEM 2: POINTS ALLOCATION

Parties receive points for each vote. The better the preference, the more points received.

Vote Preference	Points
1	12
2	10
3	8
4	6
5	4
6	2
7	1
8	0

The party with the highest number of points wins the District.

The workbook provided contains all of the voting data. In order to answer all of the questions, you will need to use the rules of each counting system below to determine the winning party or parties for each District under each counting system.

Questions 17 to 19 and 26 relate to multiple Counting Systems.
Questions 20 to 22 relate to Counting System 1: First Past the Post
Questions 23 to 25 relate to Counting System 2: Points Allocation

**For Questions 17 to 24, select your answer from a multiple choice list.
For Questions 25 to 26, you are required to type in your answer.**

**Prepare your model and then use it to answer the given questions.
When finished, please upload your workbook (Question 27).**