

## Comparing proportions (contingency table analysis)

Israel's National Soccer Team wishes to compare its performances in Israel home field versus abroad games. For this purpose, the following winning/loosing scores were collected.

Score \ Field	Israel	Abroad	Total
Won	45  $60 \cdot 76 / 108 = 42.22$	31  $48 \cdot 76 / 108 = 33.78$	76
Lost	15  $60 - 42.22 = 17.78$	17  $48 - 33.78 = 14.22$	32
Total	60	48	108

1. State the hypothesis for testing whether the location effects the group's performance.
2. Calculate the expected frequencies table.
3. Calculate the cell  $\chi^2$  and the overall  $\chi^2$ .
4. At 5% significance, would you say that the location effects the group's performance?

$$H_0: P_{i, \text{Israel}} = P_{i, \text{abroad}} \quad .1$$

$$H_1: P_{i, \text{Israel}} \neq P_{i, \text{abroad}}$$

$$E_{ij} = n_j \cdot t_i / n \quad .2$$

$$\chi^2 = 1.387 \quad .3$$

$$1.387 < 3.84, H_0 \text{ , ההתפלגות דומה בין קבוצות המדגם.} \quad .4$$