

O and E Stuff

CREDIT: The questions on this document were written by Erik Packard, PhD, Associate Professor of Mathematics at Colorado Mesa University.

- Problem 4

- Can you prove at the 1% significance level that the number of absences at an elementary school is not evenly distributed throughout the weekday? An SRS of absences is shown below:

Day of the Week:	Monday	Tuesday	Wednesday	Thursday	Friday
Number of Absences:	81	44	48	50	77

- A) Give the critical value(s) (from the appropriate table).
- B) Give the value of the test statistic (from the data).
- C) Is the answer Yes or No?
- D) What is the p -value?
- E) Describe the meaning of the p -value in everyday terms.

- Problem 9

- A manufacturing plant for making candy was set up to make the candies 30% red, 25% yellow, 15% orange, 15% blue, and 15% green. A few years later, a random sample of candies is collected. Can we prove at the 1% significance level that the percentages have changed? A SRS of candies had the following data:

Color:	Red	Yellow	Orange	Blue	Green
Number of Candies:	98	77	47	44	34

- A) Give the critical value(s) (from the appropriate table).
- B) Give the value of the test statistic (from the data).
- C) Is the answer Yes or No?
- D) What is the p -value?
- E) Describe the meaning of the p -value in everyday terms.

- Problem 14

- Can we prove at the 10% significance level that there is a relationship between what part of Montana a person lives in and their political affiliation? A poll of Montana residents gave the following data:

	Democrat	Republican	Independent
West	39	17	12
Northeast	15	30	12
Southeast	30	31	16

- A) Give the critical value(s) (from the appropriate table).
- B) Give the value of the test statistic (from the data).
- C) Is the answer Yes or No?
- D) What is the p -value?
- E) Describe the meaning of the p -value in everyday terms.