Q1
1 Point

Which of the following is a correct application of the pooled sample proportion?

- ○ To compare the means of two paired samples
- ○ To estimate the mean of two independent samples
- ○ To determine the variance of two unrelated samples
- ◉ To calculate the standard error for the difference in two sample proportions

Q2
1 Point

The standard error of the difference between two sample proportions is:

- ◉ Calculated using the pooled sample proportion when the null hypothesis assumes no difference
- ○ Always smaller than the standard error of a single sample proportion
- ○ Independent of the sample size. Larger when the sample proportions are further apart

Q3
1 Point

When checking the sample size condition for the normal approximation, you must ensure:

- ○ The sample size is large enough that the Central Limit Theorem applies
- ◉ Both samples have at least 10 successes and 10 failures
- ○ Each sample size is less than or equal to 10% of the population if sampling without replacement
- ○ The sample size is exactly 30

Q4
1 Point

In a two-tailed test for the difference in two proportions, if the z-score is 2.59 and the significance level is 0.01, the p-value is:

- ○ Exactly 0.02
- ◉ Less than 0.01
- ○ Greater than 0.01
- ○ Cannot be determined from the information given

Q5
1 Point

The formula for the standard error of the difference between two independent sample proportions p_1 and p_2

$$SE = \sqrt{\frac{p_1(1-p_1)}{n_1} + \frac{p_2(1-p_2)}{n_2}}$$

What statistical principle is used to derive this formula?

- ◉ The variance of the sum of two independent random variables
- ○ The Central Limit Theorem
- ○ The Law of Total Variance
- ○ The properties of the binomial distribution