|  |
| --- |
| Number 5  A nationwide sample of influential Republicans and Democrats was asked as a part of a comprehensive survey whether they favored lowering environmental standards so that high-sulfur coal could be burned in coal-fired power plants. The results were: |

|  |  |  |
| --- | --- | --- |
|  | Republicans | Democrats |
| Number sampled | 1,000 | 800 |
| Number In favor | 200 | 168 |
|  | | |

*Hint*: For the calculations, assume the Democrats as the first sample.

|  |  |
| --- | --- |
| **(1)** | State the decision rule for .02 significance level: . **(Round your answer to 2 decimal places.)** |

|  |  |
| --- | --- |
| Reject *H*0 if *z* > |  |

|  |  |
| --- | --- |
| **(2)** | Compute the value of the test statistic. **(Round your answer to 2 decimal places.)** |

|  |  |
| --- | --- |
| Value of the test statistic |  |

|  |  |
| --- | --- |
| **(3)** | Determine the *p*-value. **(Round your answer to 4 decimal places.)** |

|  |  |
| --- | --- |
| *p*-value is |  |

|  |  |
| --- | --- |
| **(4)** | Can we conclude that there is a larger proportion of Democrats in favor of lowering the standards? Use the 0.02 significance level. |

|  |
| --- |
| *H*0. We conclude that there is a larger proportion of Democrats in favor of lowering the standards. |

Drop down 1 option: reject or fail to reject

Drop down 2 options: cannot or can

Number 6

|  |
| --- |
| The research department at the home office of New Hampshire Insurance conducts ongoing research on the causes of automobile accidents, the characteristics of the drivers, and so on. A random sample of 400 policies written on single persons revealed 120 had at least one accident in the previous three-year period. Similarly, a sample of 600 policies written on married persons revealed that 150 had been in at least one accident. |
| At the .05 significance level, is there a significant difference in the proportions of single and married persons having an accident during a three-year period? Determine the *p*-value. *Hint*: For the calculations, assume the single persons as the first sample. |

|  |  |
| --- | --- |
| **(1)** | The pooled proportion is . **(Round your answer to 2 decimal places.)** |
| **(2)** | The decision rule is to reject  if *z* is the interval (, ). **(Negative amount should be indicated by a minus sign. Round your answer to 2 decimal places.)** Drop down options: inside or outside |
| **(3)** | The test statistic is *z* =. **(Round your answer to 2 decimal places.)** |
| **(4)** | The *p*-value is . **(Round your answer to 4 decimal places.)** |
| **(5)** | What is your decision regarding  ? |

Drop down options: reject or do not reject

|  |
| --- |
| Number 7  Mary Jo Fitzpatrick is the Vice President for Nursing Services at St. Luke's Memorial Hospital. Recently she noticed in the job postings for nurses that those that are unionized seem to offer higher wages. She decided to investigate and gathered the following information. |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Population | | |
| Group | Mean Wage | Standard Deviation | Sample Size |
| Union | $20.75 | $2.25 | 40 |
| Nonunion | $19.80 | $1.90 | 45 |

|  |
| --- |
| Would it be reasonable for her to conclude that union nurses earn more? Use the .02 significance level. What is the p-value? |

|  |  |
| --- | --- |
| **(1)** | Is this a one-tailed or a two-tailed test? |

|  |
| --- |
| This a -tailed test. |

Drop down options: two or one

|  |  |
| --- | --- |
| **(2)** | State the decision rule. **(Round your answer to 2 decimal places.)** |

|  |
| --- |
| The decision rule is to reject HO if Z |
|  |

Drop down options: less than, greater than or equal to

|  |  |
| --- | --- |
| **(3)** | Compute the value of the test statistic. **(Round your answer to 2 decimal places.)** |

|  |
| --- |
| The test statistic is Z = |

|  |  |
| --- | --- |
| **(4)** | What is your decision regarding HO? |

|  |
| --- |
| HO is |

Drop down options: not rejected or rejected

|  |  |
| --- | --- |
| **(5)** | What is the p-value? **(Round your answer to 4 decimal places.)** |

|  |
| --- |
| The p-value is |