Number 8

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| A coffee manufacturer is interested in whether the mean daily consumption of regular-coffee drinkers is less than that of decaffeinated-coffee drinkers. Assume the population standard deviation for those drinking regular coffee is 1.20 cups per day and 1.36 cups per day for those drinking decaffeinated coffee. A random sample of 50 regular-coffee drinkers showed a mean of 4.35 cups per day. A sample of 40 decaffeinated-coffee drinkers showed a mean of 5.84 cups per day. |

Use the .01 significance level.  
  
**(1)** This a -tailed test. Drop down options: one or two

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| **(2)**  The decision rule is to reject   if **Z <**  . **(Negative amount should be      indicated by a minus sign. Round your answer to 2 decimal places.)** |

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| **(3)**  The test statistic is Z  =  . **(Negative amount should be indicated by a minus sign.      Round your answer to 2 decimal places.)** |

**(4)** What is your decision regarding    ? 

Drop down options: do not reject or reject   
  
**(5)** The p-value is .

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| Number 9  The management of Discount Furniture, a chain of discount furniture stores in the North-east, designed an incentive plan for salespeople. To evaluate this innovative plan, 12 salespeople were selected at random, and their weekly incomes before and after the plan were recorded. |

|  |  |  |
| --- | --- | --- |
| Salesperson | Before | After |
| Sid Mahone | $320 | $340 |
| Carol Quick | 290 | 285 |
| Tom Jackson | 421 | 475 |
| Andy Jones | 510 | 510 |
| Jean Sloan | 210 | 210 |
| Jack Walker | 402 | 500 |
| Peg Mancuso | 625 | 631 |
| Anita Loma | 560 | 560 |
| John Cuso | 360 | 365 |
| Carl Utz | 431 | 431 |
| A. S. Kushner | 506 | 525 |
| Fern Lawton | 505 | 619 |
|  | | |

*Hint*: For the calculations, assume the "After" data as the first sample.

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| [**Please see attached Excel Data File**](http://highered.mcgraw-hill.com/sites/dl/free/0073401765/663715/Ex11_25.xls) **named number 9** |

|  |  |
| --- | --- |
| **(1)** | State the decision rule for .05 significance level: *H*0: d ≤ 0; *H*1: d> 0. **(Round your answer to 3 decimal places.)** |

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

|  |  |
| --- | --- |
| **(2)** | Compute the value of the test statistic. **(Round your answer to 1 decimal place.)** |

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

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

|  |
| --- |
| *p*-value is greater than and less than |

1st Drop down options: 0.025 or 0.0005 or 0.005

2nd Drop down options: 0.05 or 0.1 or 0.01

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| --- | --- |
| **(4)** | Was there a significant increase in the typical salesperson's weekly income due to the innovative incentive plan? Use the 0.05 significance level. |

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| *H0*. There is increase in the typical salesperson's weekly   income due to the innovative incentive plan. |

1st Drop down options: reject or fail to reject

2nd Drop down options: no significant or a significant

Number 10

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| The president of the American Insurance Institute wants to compare the yearly costs of auto insurance offered by two leading companies. He selects a sample of 15 families, some with only a single insured driver, others with several teenage drivers, and pays each family a stipend to contact the two companies and ask for a price quote. To make the data comparable, certain features, such as the amount deductible and limits of liability, are standardized. The sample information is reported below.  At the .10 significance level, can we conclude that there is a difference in the amounts quoted? *Hint*: For the calculations, assume the Progressive Car insurance as the first sample. |

|  |  |  |
| --- | --- | --- |
| Family | Progressive Car Insurance | GEICO Mutual Insurance |
| Becker | $2,090 | $1,610 |
| Berry | 1,683 | 1,247 |
| Cobb | 1,402 | 2,327 |
| Debuck | 1,830 | 1,367 |
| DuBrul | 930 | 1,461 |
| Eckroate | 697 | 1,789 |
| German | 1,741 | 1,621 |
| Glasson | 1,129 | 1,914 |
| King | 1,018 | 1,956 |
| Kucic | 1,881 | 1,772 |
| Meredith | 1,571 | 1,375 |
| Obeid | 874 | 1,527 |
| Price | 1,579 | 1,767 |
| Phillips | 1,577 | 1,636 |
| Tresize | 860 | 1,188 |
|  | | |

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| [**please see the attached Excel Data File**](http://highered.mcgraw-hill.com/sites/dl/free/0073401765/663715/Ex11_52.xls) **named number 10** |

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| Reject *H*0 if *z* < or *z* > . **(Negative amount should be indicated by a minus sign. Round your answer to 3 decimal places.)** |

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| The test statistic is . **(Negative amount should be indicated by a minus sign. Round your answer to 2 decimal places.)** |

|  |
| --- |
| Decision: |

Drop down options: reject or do not reject