[1.5%] **ONE SAMPLE HYPOTHESIS TEST FOR MEAN**: A bowler who has averaged 196 pins in the past year is asked to experiment with a ball made of a new kind of material. If he rolls 25 games with the new ball, averaging 204 pins with a standard deviation of 24.9, can one conclude at a level of significance of .01 that the new ball has improved his game?

1a) Direction = **UPPER TAILED** / **LOWER TAILED** / **2-TAILED** (circle one)

1b) P-value = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1c) **REJECT THE NULL** or **DO NOT REJECT THE NULL**? (circle one)

1d) Can we conclude the ball improved his game? **YES** or **NO** (circle one)

[1.5%] **ONE SAMPLE HYPOTHESIS TEST FOR PROPORTION**: The Webster University librarian believes that more than 60% of the books checked out by students was fictional material. In a random sample of 1000 students who checked books out in the last year, 628 checked out fictional material. What can one conclude about the librarian's hypothesis at a level of significance of .05?

2a) Direction = **UPPER TAILED** / **LOWER TAILED** / **2-TAILED** (circle one)

2b) P-value = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2c) **REJECT THE NULL** or **DO NOT REJECT THE NULL**? (circle one)

2d) Can we conclude the librarian’s claim is correct? **YES** or **NO** (circle one)

[1.5%] **TWO SAMPLE HYPOTHESIS TEST FOR MEAN – INDEPENDENT SAMPLES**: Eight college students were randomly divided into 2 groups of 4 each to test whether background music reduces studying capacity. Each person was tasked with memorizing a list of 20 words. Group 1 had music playing through earphones they were wearing. Group 2 was not distracted. The following are the number of words correctly remembered by each subject. Test whether the music reduces studying capacity at a .05 level of significance.

|  |  |
| --- | --- |
| **Group 1 -- DISTRACTED** | **Group 2 – NOT DISTRACTED** |
| Sample mean = 7Sample size = 4Sample std.dev. = 2.5 | Sample mean = 14Sample size = 4Sample std.dev. = 3.5 |

3a) Direction = **UPPER TAILED** / **LOWER TAILED** / **2-TAILED** (circle one)

3b) P-value = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3c) **REJECT THE NULL** or **DO NOT REJECT THE NULL**? (circle one)

3d) Can we conclude that music reduces studying capacity? **YES** or **NO** (circle one)