Time Frame: 50 minutes

Subject Matter: Steps in Hypothesis Testing - Traditional Method TELL ME

Objective: TSWBAT state the null and alternative hypotheses and find the critical value for the z test.

Standards: DA – 4.10

 Materials: PowerPoint Presentation, Calculator, and Worksheets

SHOW ME

Presentation of Information

The teacher will discuss the following:

* Homework:

For each conjecture, state the null and alternative hypotheses.

1. The average age of the taxi drivers in New York City is 36.3 years.

**Answer:** $H\_{0}: μ=36.3$ **(claim) and** $H\_{1}: μ\ne 36.3$

1. The average income of nurses is $36,250.

**Answer:** $H\_{0}: μ=36,250$ (claim) and $H\_{1}: μ\ne 36,250$

1. The average age of disk jockeys is greater than 27.6 years.

**Answer:** $H\_{0}: μ\leq 27.6$ and $H\_{1}: μ>27.6$ (claim)

1. The average pulse rate of female joggers is less than 72 beats per minute.

**Answer:** $H\_{0}: μ\geq 72$ and $H\_{1}: μ<72$ (claim)

1. The average bowling score of people who enrolled in a basic bowling class is less than 100.

**Answer:** $H\_{0}: μ\geq 100$ and $H\_{1}: μ<100$ (claim)

1. The average cost of a 3D-ready blu ray is $249.95.

**Answer:** $H\_{0}: μ=\$249.95$ **(claim) and** $H\_{1}: μ\ne \$249.95$

1. The average electric bill for residents in Marlboro County exceeds $52.98 per month.

**Answer:** $H\_{0}: μ\leq \$52.98$ and $H\_{1}: μ>\$52.98$ (claim)

1. The average number of calories of brand A’s low-calorie meals is at most 300.

**Answer:** $H\_{0}: μ\leq 300$ (claim)and $H\_{1}: μ>300$

1. The average weight loss of people who use brand A’s low – calorie meals for 6 weeks is at least 3.6 pounds.

**Answer:** $H\_{0}: μ\geq 3.6$ (claim) and $H\_{1}: μ<3.6$

* **Statistical Test –** uses the data obtained from a sample to make a decision about whether the null hypothesis should be rejected.
* **Test Value –** the numerical value obtained from a statistical test.
	+ In the hypothesis – testing situation, there are four possible outcomes. Like for example in a jury trial. The defendant is either guilty or innocent, and he or she will be convicted or acquitted.

$H\_{0}$ False

$H\_{0}$ True

$H\_{0}: The defendant is innocent$.

$$H\_{1}: The defendant is not innocent.$$

Reject $H\_{0}$

Do not reject $H\_{0}$

* **Level of Significance –** is the maximum probability of committing a type 1 error. We use the symbol $α$ (Greek letter **alpha**).
* **Critical value –** separates the critical region from the noncritical region.
* **Critical Region –** is the range of values of the test value that indicates that there is a significant difference and the null hypothesis should be rejected.
* **Noncritical Region –** is the range of values of the test value that indicates that the difference was probably due to chance and that the null hypothesis should not be rejected.

Finding the Critical Value; Determining the Critical Region and Noncritical Region

**Situation A (Two – Tailed Test)**

1. Find the critical values for $α=0.01$
2. Find the critical values for $α=0.05$
3. Find the critical values for $α=0.10$

**Situation B (Right – Tailed Test)**

1. Find the critical values for $α=0.04$
2. Find the critical values for $α=0.08$
3. Find the critical values for $α=0.12$

**Situation C (Left – Tailed Test)**

1. Find the critical values for $α=0.02$
2. Find the critical values for $α=0.06$
3. Find the critical values for $α=0.10$