FULL NAME:_____   **DATE:** January, 6th, 2025   _____

GROUP NUMBER:_____   **TIME:** 90 minutes   **20**

ACTIVITY ONE (6 points)

- Tick (✓) the correct answer.

 # A measure of central tendency?
○ Standard deviation
○ Variance
○ Median
○ Range

 # P = .053 in the Levene's test means that:
○ The means are significantly different
○ The means are not significantly different
○ The variances are significantly different
○ The variances are not significantly different

 # A histogram visualizes
○ Categorical data
○ Numerical data
○ Ordinal data
○ None of the above

 # The Pearson correlation coefficient measures:
○ Causal relationships
○ The strength and direction of a linear relationship
○ Differences between two means
○ The probability of an event

 # The null hypothesis (H_0) is:
○ Positive
○ Negative
○ Directional
○ Neutral

 # A Type 1 error happens when we:
○ Accept a true null hypothesis
○ Reject a true null hypothesis
○ Accept a false null hypothesis
○ Reject a false null hypothesis

ACTIVITY TWO (6 points)

- Match the definitions on the left with their corresponding concept on the right.

A measure of how spread out data points are around the mean	**Standard deviation**
A non-parametric test for comparing the medians of more than two independent groups	**Kruskal-Wallis Test**
Continuous numerical data where the difference between values is meaningful with no true zero point	**Interval Data**
Data with a natural order but unequal intervals (e.g., Likert scales)	**Ordinal Data**
A sampling method where the population is divided into subgroups, and samples are randomly taken from each subgroup	**Stratified Random Sampling**
A statistical test used to determine whether the variances of two or more groups are equal	**Levene's Test**

ACTIVITY THREE (8 points)

- Based on the results presented in the table and the formula below, <u>calculate</u> and <u>interpret</u> the effect size:

	n	Mean	Standard Deviation
Group 1	5	37.40	*16.24*
Group 2	5	32.80	*15.61*

Cohen's d:

$$d = \frac{\overline{x}_1 - \overline{x}_2}{SD_{Pooled}}$$

Where:

$$SD_{Pooled} = \sqrt{\frac{(n_1 - 1)SD_1^2 + (n_2 - 1)SD_2^2}{n_1 + n_2 - 2}}$$

Calculation:

<u>STEP 1</u>: $\overline{x}_1 - \overline{x}_2 =$ **4.6**

<u>STEP 2</u>: $(n_1 - 1)SD_1^2 + (n_2 - 1)SD_2^2 =$ **2029.64**

<u>STEP 3</u>: $n_1 + n_2 - 2 =$ **8**

<u>STEP 4</u>: $\sqrt{\dfrac{2029.64}{8}}$

<u>STEP 5</u>: $\sqrt{253.71}$

<u>STEP 6</u>: $SD_{Pooled} =$ **15.93**

<u>STEP 7</u>: $d =$ **.29**

Interpretation:

Based on the *d* value, the effects size is: **Small effect size**