Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_

**Bozeman Science: Chi-Square Video Review Sheet**

*www.bozemanscience.com/chi-squared-test*

**1.** Label what each element represents in the Chi-square formula: X2 = Σ

(O – E)2

 E

**2.** Why do you use the Chi-Square Test?

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**3.** Define the Null Hypothesis.

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**4.** What is the whole point or cool thing about Chi-Square?

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**5.** What is the whole point of a Chi-Square test?

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**6.** What is the definition of and how do you calculate the “**Degrees of Freedom**”?

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**7.** What is the ***probability*** (**p**) we will always us in this class (*AP Biology at NSU*)? \_\_\_\_\_\_\_\_\_\_

**8.** What does a ***probability*** (**p**) of **.05** actually mean?

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**9.** What happens if you get a Chi-Square **HIGHER** than your critical value?

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**10.** What happens if you get a Chi-Square **LOWER** than your critical value?

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**11.** Complete the Chi-square question Paul Andersen uses as an example involving coin flipping.

 **(a)** State your **null hypothesis** (Ho) for this problem:

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  | **Heads** | **Tails** |
| ***Expected*** |   |   |
| ***Observed*** |   |   |

 **(b)** Fill in the data table to the right with the sample

 data Mr. Andersen give you and then solve.

 **Please SHOW ALL WORK in the space below.**

 (***E****quation –* ***S****ubstitute –* ***A****nswer = ESA*)

**12.** **(a)** What is the ***probability*** (**p**) we will use in this problem and **ALL** problems at NSU? \_\_\_\_\_\_\_\_\_\_

 **(b)** What is your ***critical value*** for this problem? \_\_\_\_\_\_\_\_\_\_

 **(c)** What is your ***degrees of freedom*** for this problem? \_\_\_\_\_\_\_\_\_\_

 **(d)** What is the Chi-square value you calculated? \_\_\_\_\_\_\_\_\_\_

 **(e)** Is your Chi-square **HIGHER** or **LOWER** than the critical value from the table? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **(f)** Do you ***ACCEPT*** or ***REJECT*** your null hypothesis? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 What **EXACTLY** does this mean: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**13.** Complete the 2nd Chi-square question Paul Andersen uses as an example involving dice.

 **(a)** State your **null hypothesis** (*Ho*) for this problem:

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 **(b)** Fill in the data table below with the sample data Mr. Andersen give you and then solve.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** |
| ***Expected*** |   |   |   |   |   |   |
| ***Observed*** |   |   |   |   |   |   |

**Please SHOW ALL WORK in the space below.**

(***E****quation –* ***S****ubstitute –* ***A****nswer = ESA*)

**14.** **(a)** What is the ***probability*** (**p**) we will use in this problem and ALL problems at NSU? \_\_\_\_\_\_\_\_\_\_

 **(b)** What is your ***critical value*** for this problem? \_\_\_\_\_\_\_\_\_\_

 **(c)** What is your ***degrees of freedom*** for this problem? \_\_\_\_\_\_\_\_\_\_

 **(d)** What is the **Chi-square value** you calculated? \_\_\_\_\_\_\_\_\_\_

 **(e)** Is your Chi-square **HIGHER** or **LOWER** than the critical value from the table? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **(f)** Do you ***ACCEPT*** or ***REJECT*** your null hypothesis? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 What **EXACTLY** does this mean: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**15.** Complete the 3rd Chi-square question Paul Andersen uses as an example involving pill bugs.

 **(a)** State your **null hypothesis (***Ho***)** for this problem:

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|  |  |  |
| --- | --- | --- |
|  | **Wet** | **Dry** |
| ***Expected*** |   |   |
| ***Observed*** |   |   |

 **(b)** Fill in the data table to the right with the sample

 data Mr. Andersen give you and then solve.

 **Please SHOW ALL WORK in the space below.**

 (***E****quation –* ***S****ubstitute –* ***A****nswer = ESA*)

**16.** **(a)** What is the ***probability*** (**p**) we will use in this problem and ALL problems at NSU? \_\_\_\_\_\_\_\_\_\_

 **(b)** What is your ***critical value*** for this problem? \_\_\_\_\_\_\_\_\_\_

 **(c)** What is your ***degrees of freedom*** for this problem? \_\_\_\_\_\_\_\_\_\_

 **(d)** What is the ***Chi-square*** value you calculated? \_\_\_\_\_\_\_\_\_\_

 **(e)** Is your Chi-square **HIGHER** or **LOWER** than the critical value from the table? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **(f)** Do you ***ACCEPT*** or ***REJECT*** your null hypothesis? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 What **EXACTLY** does this mean: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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