AP Stats Chapter 11: X2 GOF Test Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**1.** A new donut shop plans to sell chocolate, strawberry, blueberry, cinnamon, and powdered donuts. They wonder if there is a preference for one of these types or if each type is preferred by the same proportion of customers. A random sample of 70 customers resulted in the data summarized in the table below. The table entries are observed frequencies or counts. Perform a test using a significance level of 0.05.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Chocolate | Strawberry | Blueberry | Cinnamon | Powdered |
| Observed count | 13 | 12 | 16 | 19 | 10 |

|  |  |
| --- | --- |
| Hypothesis |  |
| Conditions |  |
| Calculations |  |
| Conclusion |  |

**2.** The distribution of blood type among all U.S. residents is as follows: Type A: 42%; Type B: 10%; Type AB: 4%; Type O: 44%. In some countries, people believe that blood type has a strong impact on personality. For example, Type B blood is thought to be associated with passion and creativity. A statistics student at a large U.S. university decides to test this theory. Reasoning that people involved in the arts should be passionate and creative, she takes a simple random sample of students majoring in performing arts at her university and asks them for their blood type. Here are her results:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Observed number of performing arts majors with each blood type | | | |  |
| Type A | Type B | Type AB | Type 0 | Total |
| 58 | 28 | 4 | 60 | 150 |

The student wants to carry out a significance test to see if the distribution of blood types among performing arts majors is different from the U.S. distribution. Carry out the appropriate test to answer her question.