Hypothesis Testing

Name:_____

A peony plant with red petals was crossed with another plant having streaky petals. A geneticist states that 75% of the offspring resulting from this cross will have red flowers. To test this claim, 100 seeds from this cross were collected and germinated and 65 plants had red petals. Use $\alpha = 0.05$ to test the geneticists claim.

Complete the missing steps in the following hypothesis test.

1. Give the Null hypothesis: $H_0 :$

2. The Alternative hypothesis is: $H_A : \ p \neq 0.75$

3. The 3 conditions necessary for the use of the normal model **are satisfied**.

4. Assuming H_0 is true, the sampling distribution for $\hat{p}$ is N(0.75 , 0.043).

5. Calculate $\hat{p}$, the proportion of plants with red flowers from the sample of 100 seeds.

6. Calculate the test Statistic.

7. Obtain the p-value. (*hint: remember you have a two-sided alternative hypothesis.*)

8. Reach a decision using $\alpha = 0.05$.

   ☐ Reject the Null Hypothesis   ☐ Fail to Reject the Null Hypothesis