

# Hypothesis Testing: Possible Outcomes for Hogwarts Mysteries!

For each cell of each table below, indicate whether you would have made a correct decision, a type 1 error, or a type 2 error. State what this would mean **for that specific research scenario**. You can work with your house on this assignment, provided each of you contribute EQUALLY. Simply copying answers from your housemates is cheating and could send you to Azkaban! Seriously, don't cheat.



**BEWARE!**  
**The labels in the tables can move.**  
**Pay attention!**

**Mystery**  **#1**

Hermione created three magic potions to convert muggles into wizards; Gryphon's Blood, Scorpion Sting, and Bat Wings Tonic. Does one work better than the other? To find out, she gives each potion to a different group of muggles and records whether the potion worked or not for each person.

	Reject Ho	Retain Ho
Ho is true in reality	1	2
Ho is false in reality	3	4



# Mystery

## #2

Is confidence level when citing a spell related to how successful that spell is? To find out, 50 Hogwarts' students are asked to cast the same spell. Their voice is analyzed for confidence level (0-20 based on decibel level and tonality) and how well the spell worked (0-7 Likert Scale).

	Retain Ho	Reject Ho
Ho is false in reality	1	2
Ho is true in reality	3	4

# Mystery

## #3

Who fears Hagrid most: male, female, or non-binary wizards? Does ancestry (pure blood, half-blood) also make a difference? A total of 200 Hogwarts students are seated in front of Hagrid while he stares menacingly into their eyes for 5 minutes. Each student has their heart rate measured before and after the stares. What is analyzed is each student's change in heart rate.

	Retain Ho	Reject Ho
Ho is true in reality	1	2
Ho is false in reality	3	4



# Mystery

## #4

All students at Hogwarts are allowed to bring one pet: an owl, cat, or toad. Does the strength of a student's magical powers depend on which pet they chose to bring? To find out, 30 students within each pet category have their magical powers tested to determine how strong they are on a very sophisticated and accurate magical power meter.

	Retain Ho	Reject Ho
Ho is true in reality	1	2
Ho is false in reality	3	4



# Mystery

#5

Is Ron Weasley a better than average quidditch game player? The number of points he scored in one season was 16. The average number of points scored in a single season by a player is 12.

	Retain Ho	Reject Ho
Ho is true in reality	1	2
Ho is false in reality	3	4





Mandrake Root cries can cause a person to faint, especially if it is plucked from the nutrients it loves. Which soil does it love most: soil fertilized with frog warts, or soil fertilized with the expelled blood from troll bloodsuckers? To find out, 20 students stand in front of a Mandrake Root potted in frog warts soil, and 20 stand in front of a Mandrake Root potted in the blood soil. Each Mandrake is plucked from its soil, and the number of students who faint and do not faint is recorded. The researcher reasons that the more students who faint, the more that Mandrake must have loved its soil.

	Ho is true in reality	Ho is false in reality
retain Ho	1	2
reject Ho	3	4

# Mystery

#7

Ron Weasley and Dobby are both high-stress individuals with unique challenges. Do people feel more empathetic towards Ron or Dobby? To find out, 30 people who know both of them are asked how much empathy they generally feel towards Ron and towards Dobby on a 7-point Likert scale.

	Ho is false in reality	Ho is true in reality
reject Ho	1	2
retain Ho	3	4



# Mystery

## #8

What does it take to let Buckbeak fly him? Raw meat? Brutal force? Kindness & respect? To find out, 20 wizards give him raw meat, 20 use brutal force, and 20 use kindness and respect. Within each condition, how long each wizard was able to fly on Buckbeak's back (in seconds) is recorded.

	Ho is true in reality	Ho is false in reality
retain Ho	1	2
reject Ho	3	4



# Mystery

#9

Who stole the fat lady? Did one of Hogwarts' houses conspire to commit the crime? To find out, every student in Hufflepuff, Gryffindor, Ravenclaw, and Slytherin takes a polygraph test. Within each house, the number of students who passed and failed the test is recorded.

	Retain Ho	Reject Ho
Ho is false in reality	1	2
Ho is true in reality	3	4



# Mystery

## #10

In the Triwizard's Tournament game, there are six 40-tile paths to the snitches circle. The facilitators and hazards appear at different locations. Is one path easier than the other? Six people play the game. The total number of cards each student attempted to answer before they reached the circle is recorded.

	Retain Ho	Reject Ho
Ho is false in reality	1	2
Ho is true in reality	3	4

