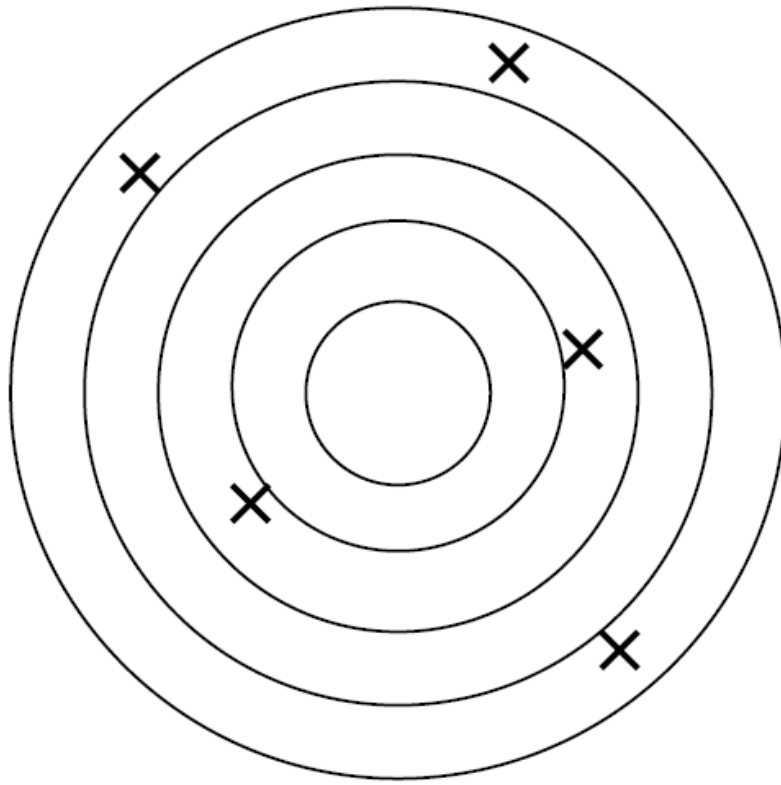


Accuracy: The condition or quality of being true.

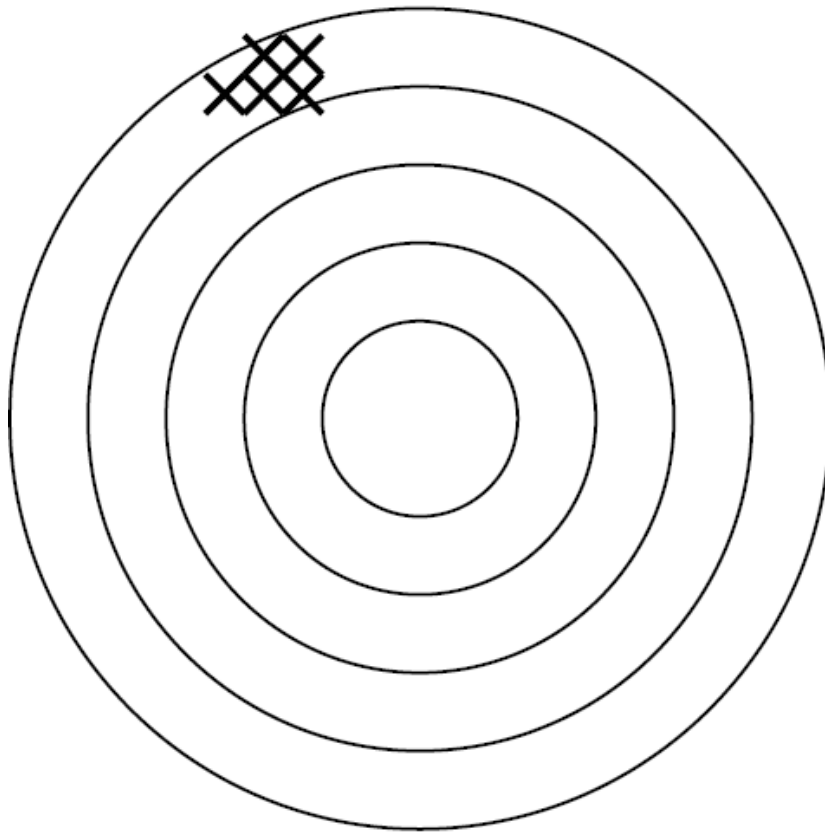
In mathematics, accuracy is the degree of correctness of a quantity.

Precision: Telling the same story over and over.
Exactness.



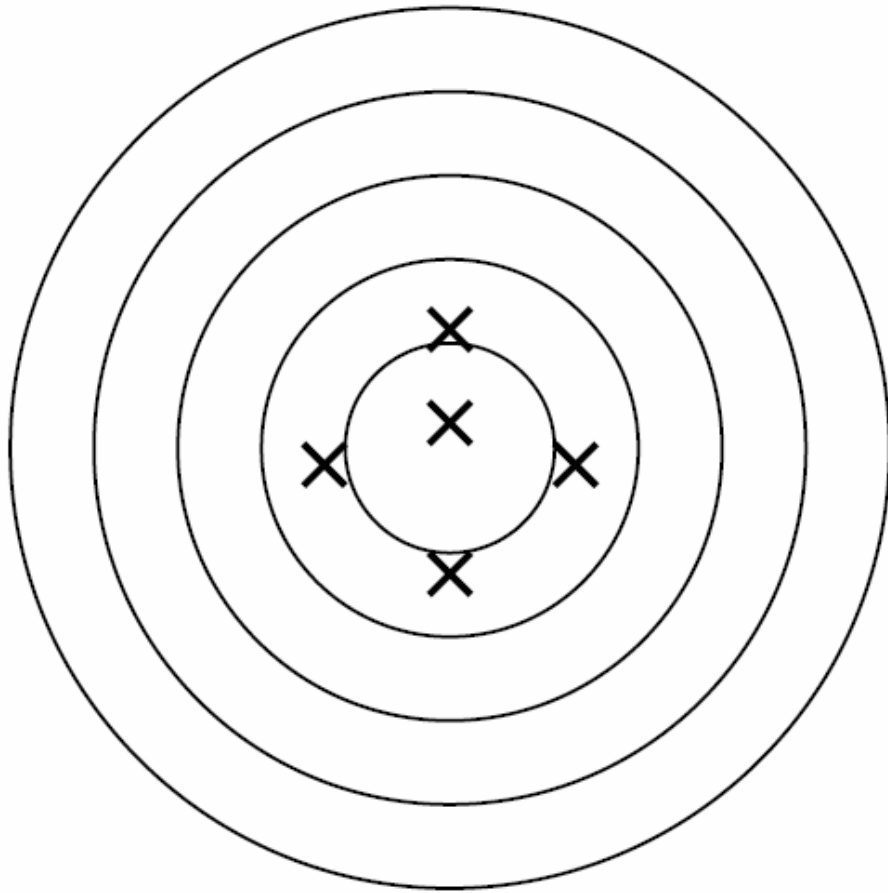
This is a random-like pattern, neither precise nor accurate. The darts are not clustered together and are not near the bull's eye.

Neither Precise Nor Accurate



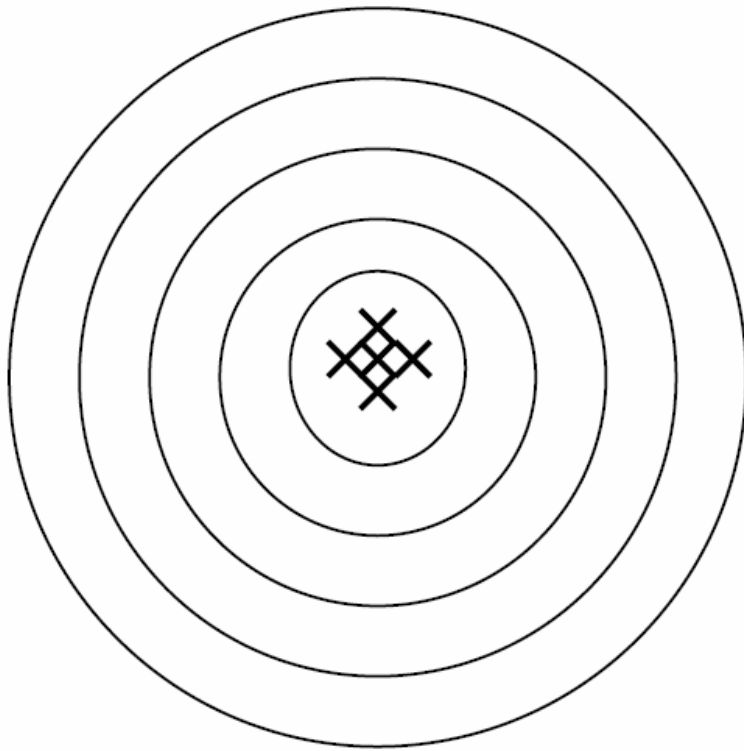
This is a precise pattern, but not accurate. The darts are clustered together but did not hit the intended mark.

Precise, Not Accurate



Accurate, Not Precise

This is an accurate pattern, but not precise. The darts are not clustered, but their average position is the center of the bull's eye.



Precise and Accurate

This pattern is both precise and accurate. The darts are tightly clustered, and their average position is the center of the bull's eye.

Example 1: Using the table below, answer the following questions.
Assume that each data set represents 5 measurements taken from the same object.

Set A	Set B
14.32	36.56
14.37	36.55
14.33	36.48
14.38	36.53
14.35	36.55

- Which of the following sets of data is more precise, based on its range?
- Do you know which data set is more accurate? Explain.

Example 2: The data tables below show measurements that were taken using three different scales. The same standard 100 gram weight was placed on each scale and measured 4 different times by the same reader using the the same method each time.

Trial #	Weight on Scale 1	Weight on Scale 2	Weight on Scale 3
1	101.5	100.00	100.10
2	101.5	100.02	100.00
3	101.5	99.99	99.88
4	101.5	99.99	100.02
Average Weight			

Determine the average weight produced by each scale. Use this average as the actual weight of the 100g mass determined by each scale. Write down the results for each scale used.

Which scale was the most precise? Explain how you know.

Which scale was the least precise? Explain how you know.

Which scale was the most accurate if we consider the true value of the weight to be 100 grams? Explain your answer.

Example 3: Below is a data table produced by 4 groups of students who were measuring the mass of a paper clip which had a known mass of 1.0004 g.

- Determine the average weight produced by each group's measurements and fill in the results in the table. Use this average as the weight of the paper clip for each group.
- Which of the group's measurements represents a properly accurate and precise measurement of the mass of the paper clip?
- Which of the group's measurements was the least accurate? Explain why.
- Which of the group's measurements had an accurate answer, but not a precise answer? Explain.

Trial #	Group 1 (g)	Group 2 (g)	Group 3 (g)	Group 4 (g)
1	1.01	3.863287	10.13252	2.05
2	1.03	3.754158	10.13258	0.23
3	0.99	3.186357	10.13255	0.75
Average Weight				

