Werner Heisenberg

Exercise 1 (Work in pairs)

Highlight the difference between measuring properties and possessing properties through research (internet/textbook) and then discuss the results in the group.

Note:

Search word “Schrödinger’s cat”

Exercise 2 (Work in pairs)

Read the definition to be able to fill in and explain the following example for measuring geometric shapes.

The term **preparation** refers to a process by which objects are brought into a certain state. This leads us to the fact that physical systems possess certain properties.

Question: When does an object possess a certain property?

Answer 1: If a measurement series is performed and the object **always** has the same reading for a property, the object **possesses** the property. **The readings do not scatter.**

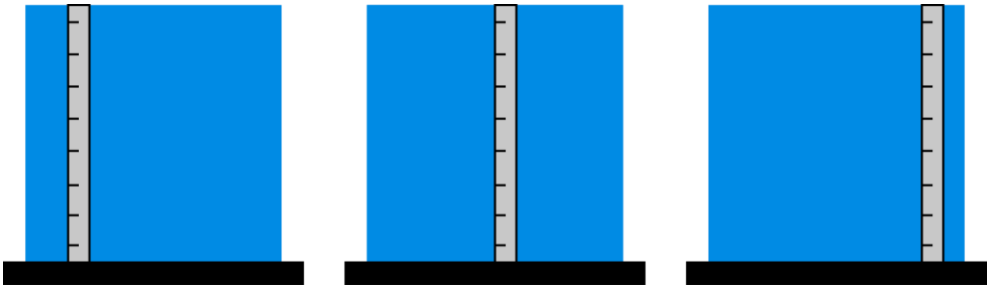
Answer 2: If a measurement series is performed and the object **does not always** have the same reading for a property, the object does **not possess** this property. **The readings scatter.**

Example:

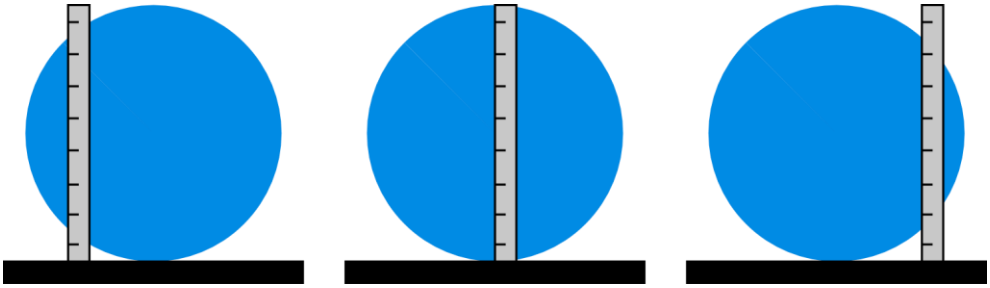
Do the square and circle geometric shapes possess the side length and diameter properties in both measurements?

Delete the terms that do not apply.

Measurement 1 Determine the side length



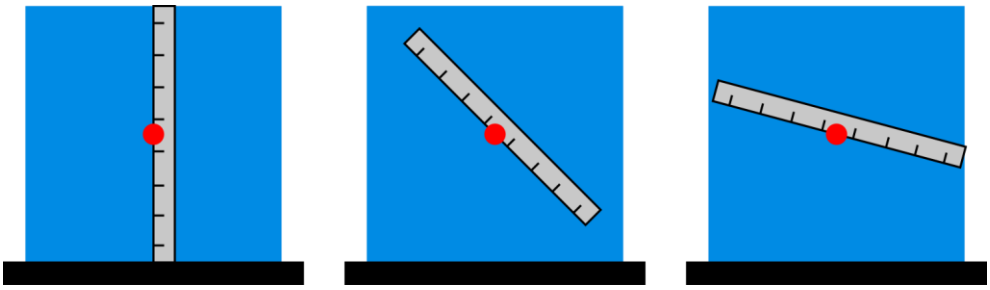
The square possesses/does not possess the side length property.
The readings scatter/do not scatter.



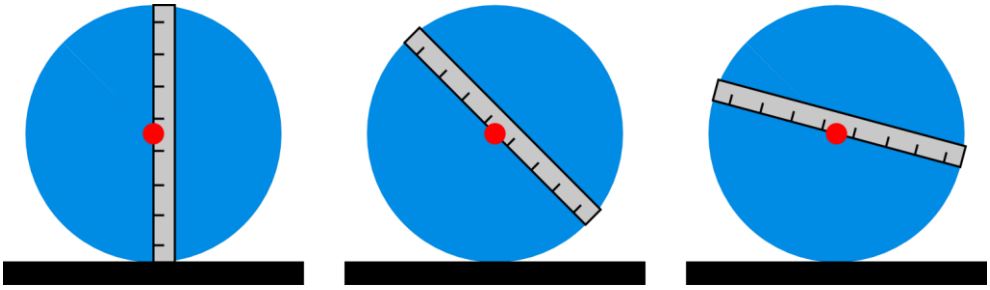
The circle possesses/does not possess the side length property.
The readings scatter/do not scatter.

Image credit: A. Kordes and M. Sauer

Measurement 2 Determine the diameter



The square possesses/does not possess the diameter property.
The readings scatter/do not scatter.



The circle possesses/does not possess the diameter property.
The readings scatter/do not scatter.

Assignment:

In the group, make statements about the possession of the side length and diameter properties of the following shapes. Make notes analogously about whether and to what extent the readings scatter.

Image credit: A. Kordes and M. Sauer