

PHYS 125 Exam 1, practice questions

Part 1. Multiple choices. (please select the best option for each question.)

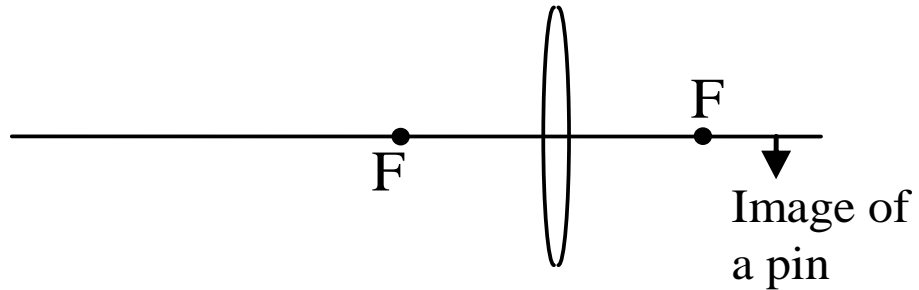
1. _____ What is the purpose of the scientific method (observation – hypothesis – testing – theory – retesting)? Select all applicable answers.
 - (a) The purpose of the scientific method is to prove theories correct.
 - (b) The purpose of the scientific method is to change a valid hypothesis into a theory.
 - (c) The purpose of the scientific method is to perform future experiments in exactly the same way past experiments were performed.
 - (d) The purpose of the scientific method is to keep scientists employed.
 - (e) None of the above is correct.

2. _____ If you have two light beams coming out of two identical flash light. Beam A is then focused down to a smaller spot than beam B. Which of the following statement is correct?
 - (a) There are more rays within spot A.
 - (b) Spot B will be brighter.
 - (c) Spot A and B have same brightness.
 - (d) Spot A will be brighter.
 - (e) There are more rays coming out of flash light A.

Part II. Comprehensive questions. Please answer each question carefully with a full explanation of your reasons. A short statement with a few words or just the conclusion is not acceptable.

1. Alice heard a lot stories about relativity theory. However, she also learned in PHYS 115 that you can never prove any theory to be true and you may only disapprove it. She claims that the theory of relativity is only a theory, therefore she doesn't believe it. What do you think about Alice's statement? Why or why not?

2. Can you trace the rays to find out the location of the image of the pin in the following graph?



Is the image larger or smaller than the original object?

Key:

1. E. 2. D.

1. You can only prove a hypothesis to be wrong, rather than prove it is true. – This part is correct. However, this doesn't mean you are free to not believe any theory. Instead, a theory is a hypothesis that has passed many tests and never fails. Therefore, a theory is something you could, and should trust, until it may be tested to be wrong one day.