Stimulus:

Alan Chalmers (What Is This Thing Called Science?, 1976, p. 1) presents the following common view of science. (See SCIE1000 Notes, §7.6.)

“Scientific knowledge is proven knowledge. Scientific theories are derived in some rigorous way from the facts of experience acquired by observation and experiment. Science is based on what we can see and hear and touch, etc. Personal opinion or preferences and speculative imaginings have no place in science. Science is objective. Scientific knowledge is reliable knowledge because it is objectively proven knowledge.”

Task:

1. Discuss the various problems that Popperian hypothetico-deductivists might find in such a view. That is, explain just what Popper would say in response to such a view.
2. What is your own response to such a view? Do you agree with the Popperian objections or are some of Popper’s responses misguided, in your view? Explain and justify your answer.

Thesis:

While Alan Chalmers’ statement holds elements of truth to the nature of science, it largely sensationalises the objectivity of the scientific method; discounting the importance of creative speculation and prediction while falsely cementing the unfounded basis of “proof”, neglecting the power of refutation.

Arguments:

1. Pro – Explain the power of refutation (hypothetico-deductivism) and it’s strengths over inductive proof. Thus relate the problems Karl Popper would find in the statement to the shortcomings of the message of the statement.
2. Against – The truth is inherently objective, and is found by repeated, accurate investigation. Personal opinion has no place in refuting statements that are based on well-founded evidence.
3. Pro – “Speculative imaginings” are the basis of experiments as they are the stimulus to curiosity. The sense of wonder is what influences a scientist to investigate a phenomenon. Thus, without speculation, there is no investigation and no acquiring of knowledge.