

Weekly assignment for week 12 (29/04/16) AST3220

Prepare for class (to be discussed in plenary)

Answer the questions on inflationary cosmology listed below. In addition, prepare the exercises 3.3 and 3.4 which will be discussed in class.

- a) What is the flatness problem?
- b) What is the horizon problem?
- c) What is the relic/monopole problem?
- d) What is inflation?
- e) How can inflation solve the above mentioned problems?
- f) What is an e-fold of inflation? How many e-folds are needed to solve the problems listed above?
- g) How can inflation lead to the formation of structures in the universe?
- h) At what time in the universe evolution could inflation take place? Why?
- i) What is reheating?

Bonus problems from universeinproblems.com

Problems 1, 5 and 6 from the section *Problems of the Hot Universe (the Big Bang Model)* and problems 21, 22, 23, 24 and 25 from the section *Cosmological Inflation: The Canonic Theory*.