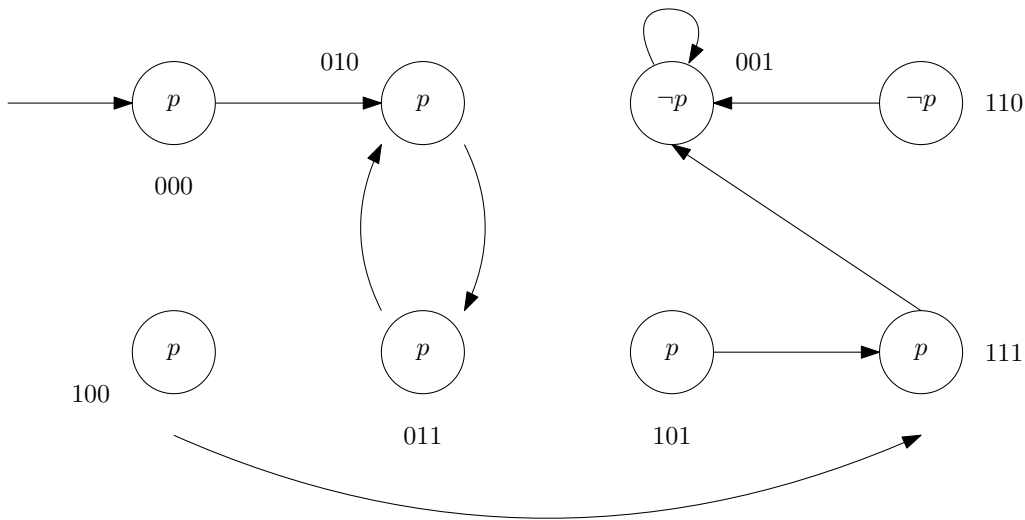# Model Checking (SS 2024) Homework 3

Deadline: **April 22, 2024, 9:00 am**
Submit your solution through TeachCenter

Consider the following Kripke structure K, with states $(x_1, x_2, x_3) \in \{0, 1\}^3$ and atomic proposition p.

Task 1. [**60 points**] Use PDR to prove that p is always true.
Clearly indicate the steps and the frames at the end of each iteration. Use "naive generalization" during the removal of bad states, as shown in class.

Task 2. [**40 points**] Are the following statements true? Justify your answer.

2.1 The set $\neg x_1$ is inductive. [**10 points**]

2.2 The set $\neg x_3$ is inductive. [**10 points**]

2.3 The set $\neg x_2$ is inductive relative to $\neg x_1$. [**10 points**]

2.4 The set $\neg x_3$ is inductive relative to $\neg x_1$. [**10 points**]