Homework 3

To hand in on October 14th at the beginning of the exercise session, or by mail at leroux@lsv.fr.
Answers can be written in french or in english.

Exercise 1. Let $M$ be the Kripke structure below. For a state formula $\varphi$ in $\text{CTL}^*$, we let $\models_M \varphi = \{ s \in \{1, \ldots, 8\} \mid M, s \models \varphi \}$.

Compute the following sets. Give a short explanation.

1. $\models \text{EG} r$
2. $\models \text{AX} q$
3. $\models \varphi_1$ where $\varphi_1 = (\text{EG} r) \lor (\neg q \land \text{EX} q)$
4. $\models \text{E} \psi$ where $\psi = \text{GF} \varphi_1 \rightarrow \text{GF}(q \land \neg r)$. 
