Lecture 3 Exercises

1. Show that the relations fibration on $\textbf{Set}$ is a bifibration.

2. Define the action of the truth functor on morphisms.

3. Define the action of the equality functor on morphisms.

4. Show that the definition of the equality functor $\text{Eq}$ specialises to the function mapping each set $X$ to the equality relation $\text{Eq} X = \{(x, x) \mid x \in X\}$ when instantiated to the relations fibration on $\textbf{Set}$.

5. Show that the equality functor is always faithful.

6. Show that the equality functor for the identity bifibration $\text{Id} : \textbf{Set} \to \textbf{Set}$ is not full.

7. Show that the equality functor for the relations fibration on $\textbf{Set}$ is full.