STACKS HWX - RUNNING LIST

(1) Show that the sheaf axiom of Hartshorne is equivalent to our sheaf axiom using coproducts.

(2) Verify that p^{-1} and p_* of a sheaf is a sheaf.

(3) Let F be a presheaf and let $p\colon X' \to X$ and $q\colon Y' \to Y$ be two morphisms such F satisfies the sheaf axiom with respect to every base change of p and q. Prove that F satisfies the sheaf with respect to $p \times q\colon X' \times Y' \to X \to Y$.

(4) Adjoint functor is fully faithful if and only if the unit (or counit) is an isomorphism. (Hint: Yoneda's lemma.)

(5) **Diagonal**.
   (a) Prove that that the diagonal is an isomorphism if and only if f is etale.

(6) A functor on X_{zar} with an open cover by schemes is a scheme.

(7) Show, explicitly, that the map $[G/G]^{ps} \to \star$ is an equivalence of categories.

(8) Stackify the stack $B_{\mathbb{G}_m}$ by hand.

(9) Let $R \to X \times X$ be an equivalence relation. Show that the diagonal $\triangle\colon X \to X \times X$