1. Let \( f: x \rightarrow y \) be a proper semismall map with \( x \) smooth. Show that \( H_{2 \cdot \dim x}^{\text{et}}(x \times_y x) \) has a basis formed by the fundamental classes of the irreducible components of \( x \times_y x \) of maximal dimension \( \dim x \). Describe these components.

2. Let \( f: x \rightarrow y \) be proper with \( x \) smooth. Assume \( s \subset y \) appears as a support in the decomposition theorem for \( Rf_* \mathbb{Q}_x [\dim x] \). Show \( \dim x - \dim s \leq 2 \dim f^{-1}(s) \) for all \( s \subset y \).

3. Let \( f: x \rightarrow y \) be proper and surjective with \( x \) a smooth surface and \( y \) a smooth curve. Assume all fibres are irreducible. Show that each summand of \( Rf_* \mathbb{Q}_x [2] \) is supported on \( y \).