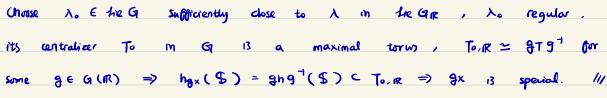
Uniqueness of canonical models,

Prop. Let Ω alg. closed field of that o, $K \subset \Omega$ subfield. If V, W are varieties over K, then any morphism $V \mathcal{A} \longrightarrow W \mathcal{A}$ commuting with the aution of Aut (\mathcal{A}/K) on $V(\Omega)$ and $W(\Omega)$ arises from a unique morphism $V \longrightarrow W$.

Cor. A variety V over K is uniquely determined up to unique ison. by $V_{\mathcal{L}}$ and the aution of $Aut(\mathcal{L}/k)$ on $V(\mathcal{L})$.

((), x) SD,

Lemma. (For every finite extension L/E(G1, X) in C) there exists a special point xo (s.t. E(xo) is linearly disjoint from L). Sketch of proof. I lie algebra off a semisimple algebraic group G over char o alg. closed field K, { x < 3 | x regular } connected open dense in g. Maximal tori in Gi (=) Cartan subaly. in g (=) centralizers of regular elements (GI, X) SP, XEX, T maximal torus in GIR containing hx(C) =) I contralizer of regular λ in Lie (Gir)



Semma.
$$\forall x \in X$$
, $[[x, a]_{k}| a \in G(A_{f})]$ is done in $Sh_{k}(G, X)$.
Pff. $Sh_{k}(G, X)(C) = G(G) \setminus x \times G(A_{f}) / K$
real approximation \Rightarrow $G(G)_{X}$ dense in X for complex
 \Rightarrow $G(G)_{X} \times G(A_{f})$ dense in $X \times G(A_{f})$ topology hence
 $gradient (G, X)(C)$ $gradient (G, X)(C)$
 $ge G(A_{f}), K, K' \in G(A_{f})$ compart open, $g^{-1}Kg \in K'$.
Recall $\Upsilon(g)$: $Sh_{K}(C) \rightarrow Sh_{K'}(C) \Rightarrow \Upsilon(g)$ mapping of variaties /(((X, a)_{K})))
 $[X, a]_{K} \longleftrightarrow [X, ag]_{K'}$
Thm. If Sh_{K} , $Sh_{K'}$ have canonical module over $E(G, X)$ then $\Upsilon(g)$
is defined over $E(G, X)$.
Pf. Let $x_{0} \in X$ special , $E(G, X) \subseteq E(x_{0})$, $\sigma \in Aut(C/E(x_{0}))$, $s \in A_{E_{0}}^{*}$
 $fx_{0}, f_{N}(s)a]_{K'}$
 $Tag (X_{0}, f_{N}(s)a]_{K'}$

$$= \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum$$