PREVIOUSLY...

MORDELL-WEIL (over $\mathbb{Q}$) { WEAK MORDELL-WEIL /K; DESCENT THEOREM; HEIGHTS (over $\mathbb{Q}$) }

$$E(\mathbb{Q}) \cong E(\mathbb{Q})_{tors} \oplus \mathbb{Z}^{R_{E/\mathbb{Q}}}.$$

RANK OF $E(\mathbb{Q})$

TORSION SUBGROUP

"FREE PART"

TODAY: TORSION POINTS

and then canonical heights.

(VII.3.4) $\Rightarrow$ **Thm.** Let K be a number field, E/K an ell. curve.

w/ $y^2 + a_1 xy + a_3 y = \cdots$

such that $a_i \in \mathcal{O}_K$. Let $P \in E(K)$ be a pl