# PART 1 SQIsign

## Question

given E and E', can we find an isogeny  $\varphi: E \to E'$ ?

easy

easy to verify that some isogeny exists, e.g. that E and E' are isogenous

#### hard

actually giving an isogeny  $\varphi: E \to E'$  or some way to compute this



### Question

given E and E', can we find an isogeny  $\varphi: E \to E'$ ?

### easy

easy to verify that some isogeny exists, e.g. that E and E' are isogenous

### intermediate

what if we additionally know some points  $P,Q\in E$  and their images  $\varphi(P),\varphi(Q)\in E'$ 

#### hard

actually giving an isogeny  $\varphi: E \to E'$  or some way to compute this

