

# why are you doing this

- i think euler's identity is a really beautiful equation and want to try to get at why
- a lot of math taught in schools doesn't even touch the *aesthetics* of it
- but: many (maybe even most) mathematicians study math because they find it beautiful, not because it's useful
- please try to set aside any math anxiety you have. there will NOT be a quiz! you do not need to understand everything. *i* do not understand everything about euler's identity... far from it! part of the appeal of euler's identity is not really "getting" it and i think that itself is beautiful
- my goal is to give just enough information to show why euler's identity is neat

# ok what's the plan

- what i mostly want to get at is the significance of  $\pi$ ,  $i$  and  $e$  and why it's powerful to have such a succinct equation that ties them all together
- 1 and 0 are also very significant! but everyone is familiar with these
- respectively, they're the multiplicative and additive identity, meaning that multiplying anything by 1 gives you back what you started with, and adding anything to 0 gives you what you started with. identities are [super important in abstract algebra](#) (as in life) to guarantee that different kinds of sets behave coherently! but i'm not going to go into that here!