

8.01i Pset #1

Professor Quincy Edwards Daft

Due January 18th, 2016

This pset should be turned into the pset boxes by 10-105. Please remember to go to office hours held by our TA, Patrick Horowitz Duncie, I will email out to the class when the time and place are decided. Remember that the answers for each problem with more than one letter should be presented in alphabetical order.

Problem: If our universe collided with another universe, which would win?

A) Alice and Bob are in the two different universes, and they have part of a pair of quantum entangled particles they can use to communicate. Alice is using these to propose a peace treaty to Bob's universe so they can stop their universes from colliding. She said, "We propose giving your universe ten puppies as a peace offering". What message did Bob receive?

B) Alyssa P. Hacker and Ben Bitdiddle are MIT juniors working together to change the courses of the colliding universes. Given the arc reactor configuration shown below, and using the module setup common to everyone in the class of 2017, there are two different middle initials Ben could have in order for the path of their universe to change by 36 degrees, what are they?

Arc Reactor specifications:

outer modules = Q,L,Y,N,P,D,C,R,E,K,M,X,J

inner modules = O,S,T,W,H,Z,U,A,B,I,V,F,G

C) Theory Pig has a vaguely crazy plan to save the universes: superposition! Pig decided that if he positioned the pair of universes into a superimposed state, they will both survive the collision. Theory Pig did not do a super good job saving them. Much of the two universes didn't, really at all, superimpose. What remains after all was said and done?