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| **Equivalency Problem** | #3: Air Travel |
| **Student** | Suraj Sehgal |
| **Assumptions:** | |
| [list any assumptions you will take into account for your calculation, either from the prompt or any that you have included]   * A mature (oak) tree will absorb more than 48lbs of CO2 in a year; 20 trees = 960 lbs of CO2 = 435.45 kg CO2/year * Flight from NYC to SF are about 2,793 miles one-way * The International Air Transport Association (IATA) suggests that an economy-class seat is responsible for approximately 0.44 pounds of CO2 per mile | |
| **Calculation:** | |
| * Carbon Capture of the mature trees:   + 20 oak trees \* 48lbs CO2/year/tree = 435.45 kg CO2/year * Total mileage of NY-SF Flights   + 2793 miles \* 2 = 5,586 miles roundtrip \* 4 trips = 22,344 miles   + 22,344 miles \* .44 lbs of CO2 emissions/mile = 9831.36 lbs CO2 = 4,459.43 kg CO2 * Number of years to match the carbon capture of oak trees:   + 4459.43/435.45 = **10.24 years** | |
| **Reflection:** | |
| It’s pretty surprising to see just how many years it will take for the trees to match the carbon emissions of the four flights. This doesn’t consider that the trees are not actually going to be mature until several years later. It also doesn’t take into account what we learned in class about forests at equilibrium not actually being a carbon sink. Even before all these caveats, it’s astonishing to realize that it’ll take 10 years for those trees to really catch up or make a difference. If we expand this to include every passenger on those same flights, it would be almost impossible for companies to truly make up for that carbon impact per flight ticket! | |
| **Sources:** | |
| * <https://www.usda.gov/media/blog/2015/03/17/power-one-tree-very-air-we-breathe#:~:text=According%20to%20the%20Arbor%20Day,the%20very%20air%20we%20breathe>. * <https://pvwatts.nrel.gov/pvwatts.php> * <https://earth911.com/how-and-buy/carbon-calculating-understand-airline-travel-impact/> | |