

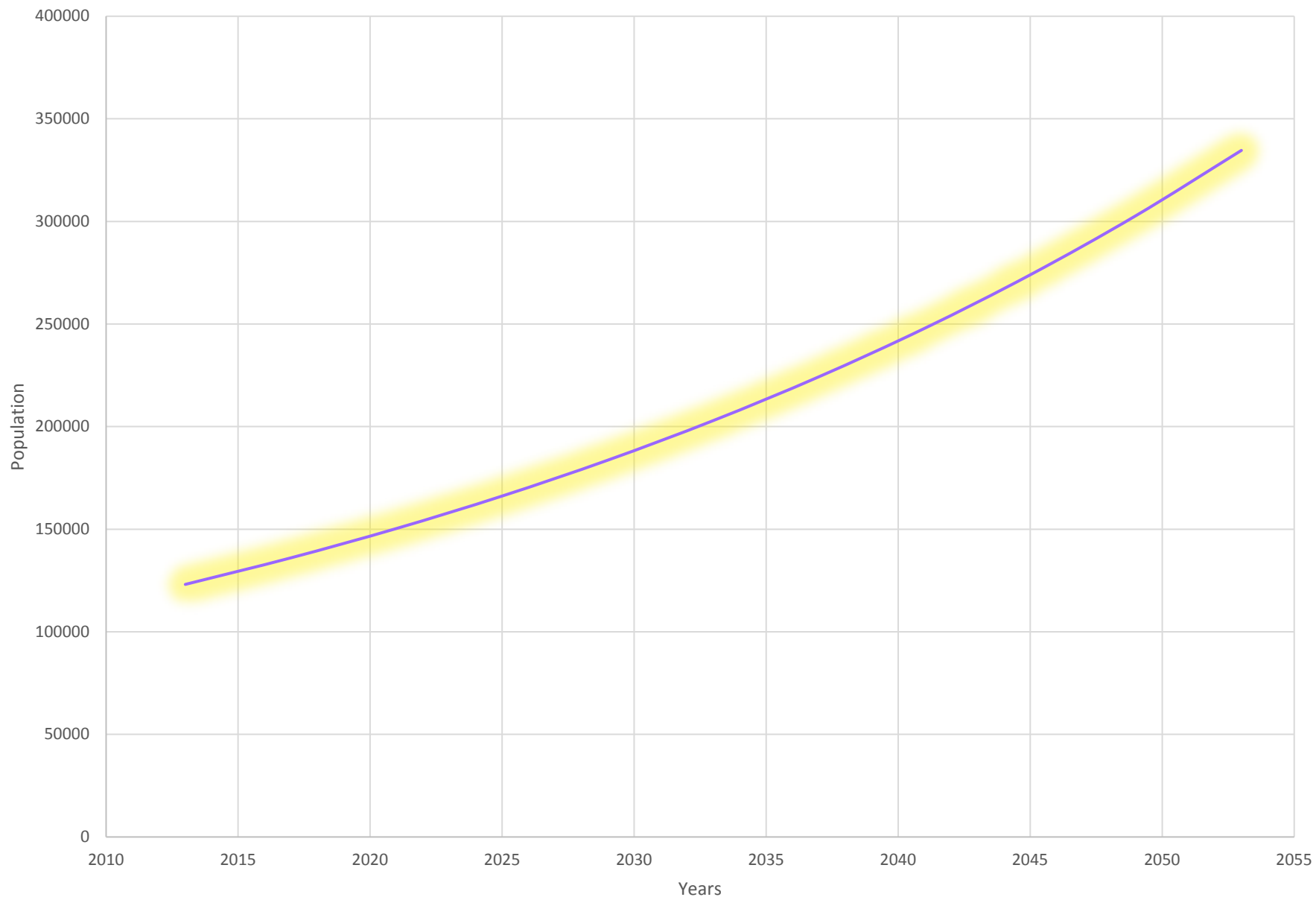
Sabrinna Rios Romero  
 ENGR 115  
 Thursday 2pm Lab  
 42621

Initial Population	123099
Growth Rate	0.025
Start Year	2013
Increment	5

Time (actual year)	Time(model year)
=B8	=0
=A12+\$B\$9	=B12+\$B\$9
=A13+\$B\$9	=B13+\$B\$9
=A14+\$B\$9	=B14+\$B\$9
=A15+\$B\$9	=B15+\$B\$9
=A16+\$B\$9	=B16+\$B\$9
=A17+\$B\$9	=B17+\$B\$9
=A18+\$B\$9	=B18+\$B\$9
=A19+\$B\$9	=B19+\$B\$9
=A20+\$B\$9	=B20+\$B\$9
=A21+\$B\$9	=B21+\$B\$9

Model Population
=B6
=\$B\$6*EXP(\$B\$7*B13)
=\$B\$6*EXP(\$B\$7*B14)
=\$B\$6*EXP(\$B\$7*B15)
=\$B\$6*EXP(\$B\$7*B16)
=\$B\$6*EXP(\$B\$7*B17)
=\$B\$6*EXP(\$B\$7*B18)
=\$B\$6*EXP(\$B\$7*B19)
=\$B\$6*EXP(\$B\$7*B20)
=\$B\$6*EXP(\$B\$7*B21)
=\$B\$6*EXP(\$B\$7*B22)

Population Growth Model of Denton, TX



1. Use your model to determine the doubling time (rounded to the nearest year) at the growth rate you calculated above. You may need to increase the number of years Excel calculates to determine this on your model page. Check your model prediction with the hand calculation you did at the beginning of lab. State the doubling time from your hand calculation and the double time provided by your model. Does the doubling time from your model match the doubling time from your hand calculation?

The doubling time in my hand calculation is 28 years, which would be a population around 246198. Twenty eight years from 2013 in the model shows a population of 247891. The doubling time in the model exceeds the hand calculation by 1693 people.

2. What growth rate would you recommend for your chosen place? Justify your recommendation as much as possible using the information you have on your chosen area and simulations you run using your spreadsheet model. One way to start could be by suggesting a carrying capacity for your place and adjusting the growth rate so that the capacity is not exceeded over a 50-year period. Be sure to include this carrying capacity value in your justification.

A carrying capacity of 300,000 people is the amount I am suggesting. I would recommend a growth rate of 0.018, since that would be a rate that would not surpass the carrying capacity over a 50-year period.

3. Does an exponential growth model seem like a reasonable model for human population growth? Why or why not?

An exponential growth model would not be reasonable since it does not take into account the carrying capacity.

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9/8/2016

Initial Population	123099
Growth Rate	0.025
Start Year	2013
Increment	4

Time (actual year)	Time(model year)	Model Population
2013	0	123099
2017	4	136045
2021	8	150353
2025	12	166166
2029	16	183642
2033	20	202956
2037	24	224301
2041	28	247891
2045	32	273962
2049	36	302775
2053	40	334618