National Education Foundation
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Dear IMC:

My organization is interested in predicting college costs in the future. We supply projections to government agencies as well as colleges to help them make better decisions. We have modeled college costs using linear and quadratic functions with limited success. We believe an exponential model would be more appropriate.

Accompanying this letter, you will find a list of states, types of colleges, and tuition costs for the school years 2006-2007 through 2009-2010.

In your analysis, we would like you to find exponential models for the cost of attending a four-year college and the cost of attending a two-year college in the state you were assigned. Use these models to compare the cost of attending a four-year college for four years to the cost of attending a two-year college for two years and a four-year college for two years. Specifically, determine how much is saved by attending two-year college to attain a four-year degree versus attending a four-year college to get the degree. To make this comparison, you will need several assumptions.

- Assume that students spend four years in college. By this, we mean that a student will spend all four years at the four-year college or the first two years at the two-year college and last two years at the four-year college.
- Assume that you will be attending college over the school years 2013-2014 through 2016-2017.
- Ignore any costs associated with room and board. Also, ignore any financial aid students might receive.
- Each exponential model must pass through two of the data points you were given for each type of institution.

To make the comparison, we anticipate that you will need to complete a number of tasks:

- **Technology Assignment – Find an Exponential Model for College Costs:** In this technology assignment, you will find and graph an exponential function that passes through two of the points on each of your datasets.
- Use your functions to find the total tuition and fees to attend a two-year college in the state you were assigned from 2013-2014 through 2014-2015 and a four-year college (either public or private) in the state you are assigned from 2015-2016 through 2016-2017.

This technology assignment is designed to help guide you through the solution process. Find the savings from attending the first two years at two-year college versus the first two years at a four-year college. Using your models, what are the rates at which each exponential function is changing?

Once you have completed these tasks, you will need to document the process you used to reach your answer. Feel free to discuss the *process* amongst yourselves, but make sure that the documentation you turn in is your own work and you complete the solution for the state with two-year and type of four-year college you were assigned. If you are unclear on what is expected in your documentation, contact your instructor via email or by phone.

Dr. Hewj Price
National Education Foundation