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| Group Quiz 3Dusty Wilson Math 111 – Spring 2012No work = no credit | **Name**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

 Answer the following:

1. Use the properties of logs to write the expression  as a single logarithm.
2. Write the expression  as the sum or difference of logarithmic functions containing no exponents.

Simran invests $15,000 at 11%, compounded semiannually. How many years until Simran has $250,000?

The table below shows Washington State’s population, in millions, from 1980 to 2010.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
| Washington Population (in millions) | 4.23 | 4.46 | 5.02 | 5.47 | 5.89 | 6.26 | 6.81 |

1. Find the linear model for Washington State’s population (in millions) years since 1980. Round  and  to two decimal places.
2. Explain the meaning of the coefficient  and  in your linear model using everyday language.
3. Find the exponential model$ $for Washington State population (in millions) t years since 1980. Round a to two decimal places and round b to the four decimal places.
4. Explain the meaning of the coefficient a and b in your exponential model using everyday language.
5. Use your exponential model to find Washington State’s population in 2020. Interpret your result.
6. Use your exponential model to determine when Washington State’s population will reach 10 million. Interpret your answer.