

**UNIT 4 • MODELING AND ANALYZING EXPONENTIAL FUNCTIONS****Lesson 1: Creating Exponential Equations**

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**Problem-Based Task 4.1.1: Population Change****Coaching**

- a. Is Town A experiencing population growth or decay? What is the equation for Town A's population after 5 years?
- b. What is the solution to the equation in part a?
- c. Is Town B experiencing population growth or decay? What is the equation for Town B's population after 5 years?
- d. What is the solution to the equation in part c?
- e. Are your solutions to parts b and d similar? What can you conclude about the economists' prediction about the populations of the two towns being about the same after 5 years?
- f. What will the variable,  $t$ , equal if the towns experience the same rates of growth or decline for 10 more years after that?
- g. What are the equations for each town's population after 10 more years?
- h. Based on your calculations, was the economists' prediction for the town populations after 10 more years correct?
- i. What factors might influence whether or not the economists' predictions come true?