

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

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**Problem-Based Task 4.1.2: Investing Money****Coaching**

- a. What is the equation for the investment at the first bank?
  
- b. What is the equation for the investment at the second bank? Keep in mind that you spent \$100 of the money you initially planned to invest.
  
- c. Graph the equations on the same set of axes, and be sure to label each equation.
  
- d. Looking at the graph of the investment you actually made, how many years does it take to earn back the \$100 you spent?
  
- e. How many years does it take before the investment you made is equal to the investment you almost made?
  
- f. What would be the equation of the investment at the second bank if you had not spent the \$100?
  
- g. Graph the equation from part f on the same set of axes as the equation from part b.
  
- h. Look at various points along the graph and use the equations. What is the difference in investments after 10 years? 20 years?
  
- i. Compare the investments of all three graphs and make observations. What conclusions can you draw about the amount you invest initially or the principal amount? What can you conclude about the number of times the interest is compounded in a year? What effect does this have on the investment?