**Decision Making in Finance: Present Value of an Investment**
VI.B.4 Road to $1 Million

In Student Activity Sheet 3, you analyzed the future value of an investment over time. You began with $2,600 invested in a savings account for 30 years. After 30 years, your initial investment would be worth $9.062.70. In this activity, you will look at the same investment in a different way. The question relates to the **time value of money** (TVM). *What is that $9,062.70 future value worth at various times in the 30-year investment?*

The following table lists the principal required to obtain the same future value of $9,062.70 for various investment lengths. So, in the table, the 30-year investment is the one you have already explored. The other values in the table show how much principal you would need to invest and the length of time of the investment for the same yield. This can be thought of as the **present value** of the investment.

Years Till Maturity	Principal Required
0	$9,062.70
5	$7,359.95
10	$5,977.16
15	$4,854.16
20	$3,942.20
25	$3,201.50
30	$2,600.00

If I want to have the same future value in 15 years, how much do I need to invest?
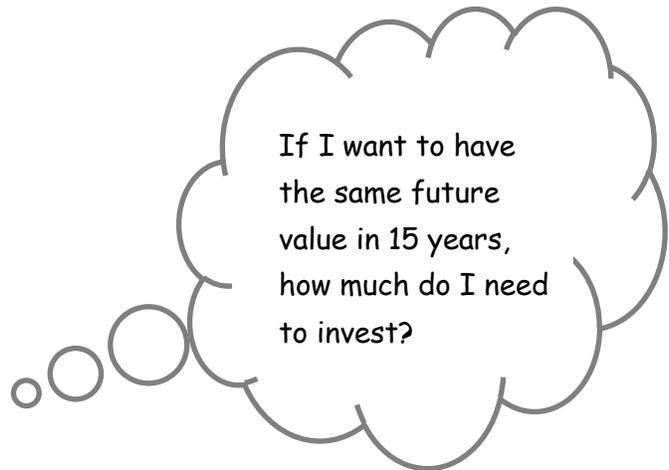
1. Create a scatterplot of the given data. Label the axes and scales, and provide a title.
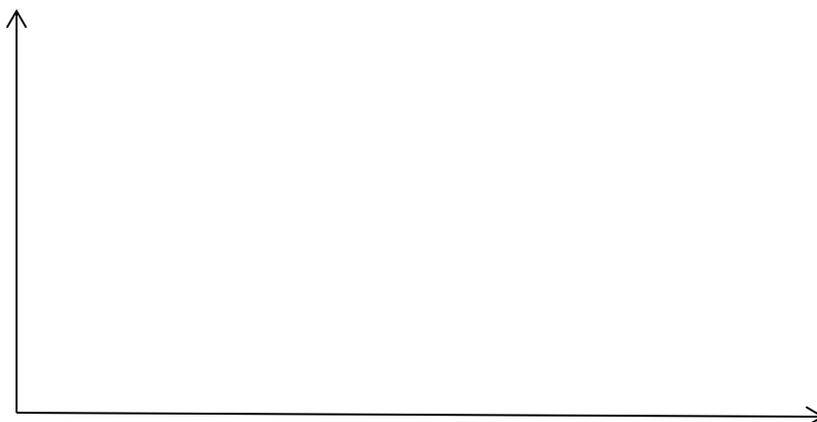
2. Calculate the regression equation for the given data. Graph the regression equation on your scatterplot. Explain why the function model you used makes sense in the problem situation.

3. Josephine is 20 years old and wants to save $1 million for retirement in 50 years. Assume she invests in a savings account that earns at the current rate of inflation and compounds annually. Determine how much Josephine must save today to reach her Retirement goal.

Write the Future Value formula from VI.A.3 #5:   FV =

FV for future value
t for time (years)
i for interest rate (in decimal form)
n for number of compound periods per year
PV for the principal or present value

4. Suppose Josephine does not want to begin saving for her retirement immediately. Fill in the following table to show the amount of money that Josephine must invest to retire 50 years from now with $1,000,000 based on the number of years that she waits to start saving.

Years of Waiting to Save	Principal Required
0	
10	
20	
30	
40	
50	

5. After seeing the numbers in the chart above, what would you advise Josephine? Why?