MATH **1314** – Signature Assignment

El Centro College's Quality Enhancement Plan is *"CT3: Critically Thinking Things Through"*. The Mathematics Department has designed a project to introduce students in MATH **1314** to critical thinking strategies, as well as help students document their thinking when tackling difficult, complex scenarios.

This assignment is worth **10 points** on your EXAM grade.

- Read the problem carefully. The problem may have multiple parts.
- Answer each part clearly using several sentences (pay attention to the instructions). Include diagrams and appropriate mathematical terminology.
- Be sure that you've written out your thoughts <u>in the space provided</u> with the **self-checklist below** in mind. You may want to print out an extra copy for a rough draft.
- Scan your completed work to a **pdf file** and upload it to QEP → Assignment on eCampus. Scanners are available in the Learning Center to help you create the pdf file or you may use the "CamScan" app for your smart device.

Self Checklist:

You must check the items below before submitting your work.

☐1. Did I write several complete sentences?

☐2. Did I cite correct and relevant mathematics, including accurate calculations and proper notation?

☐3. Are my drawings neat and labeled, with properly scaled graphs shown on graph paper?

☐4. Did I reason thoroughly?

☐5. Did I answer the question posed and include at least two types of evidence?

The table lists the average annual cost of tuition and fees at private 4-year colleges for selected years.

Year	Tuition and Fees (in dollars)
1994	11,719
1996	13,994
1998	17,709
2000	16,233
2002	21,116
2004	24,101
2006	32,218

1. Given any two data points with each consisting of the year and its corresponding tuition and fees, describe in detail how you would find a linear function that models the data shown in the table. Be sure to clearly define and interpret all components involved in your model.

2. Determine a linear function that models the data, where $x = 0$ represents 1994, and $x = 1$ represents 1995, and so on. Use the points $(0, 11719)$ and $(12, 32218)$. Choose two more combinations of points and use them to create two additional linear functions that model the data. Record the three linear functions below.

    Function 1:

    Function 2:

    Function 3:

3. How would you go about using these functions to predict the average annual cost of tuition and fees for a future year? Suppose you are in the marketing department for a college and you are trying to determine which function to use to encourage future students attend your college. Explore and state the messages that can be sent to prospective students by each function.

4. Use all three functions to approximate tuition and fees in 2035. State your results below. Next, choose the function you would use to encourage prospective students and explain the reasoning behind your choice.

    Function 1:

    Function 2:

    Function 3:

    Function of choice:

    Explanation:

Use this page if you need extra space.