

College Research and Our System of Equations

Name: _____ Date: _____ Per: _____

This section focuses on gathering information on a specific college that is of interest to you that will help you prepare for the career you want to do.

What College Will Help You Prepare for Your Career

Instructions: If you are not interested in any of the colleges or universities above, please research another school that might interest you. You must fill out the boxes below to get full Honors Credit. The following websites might be helpful: www.collegeview.com, www.collegeboard.com, www.collegedata.com

| School Name & Location | School Description | Cost and Financial Aid |
|------------------------|--------------------|------------------------|
| | | |

College Cost Analysis

Overview: Now that you have read through and/or researched college profiles, you will be choosing one college that you are most interested in and figuring out the cost of attendance over the years you are in school.

1. Which college or university do you want to choose to focus on? Why are you choosing that school? What will you be studying? How long will you have to be in school for?

1. What is the total cost of attendance for that school for each year? Add up all the costs – tuition, room/board, fees, etc. (Show work for your answer)

Making a Data Table

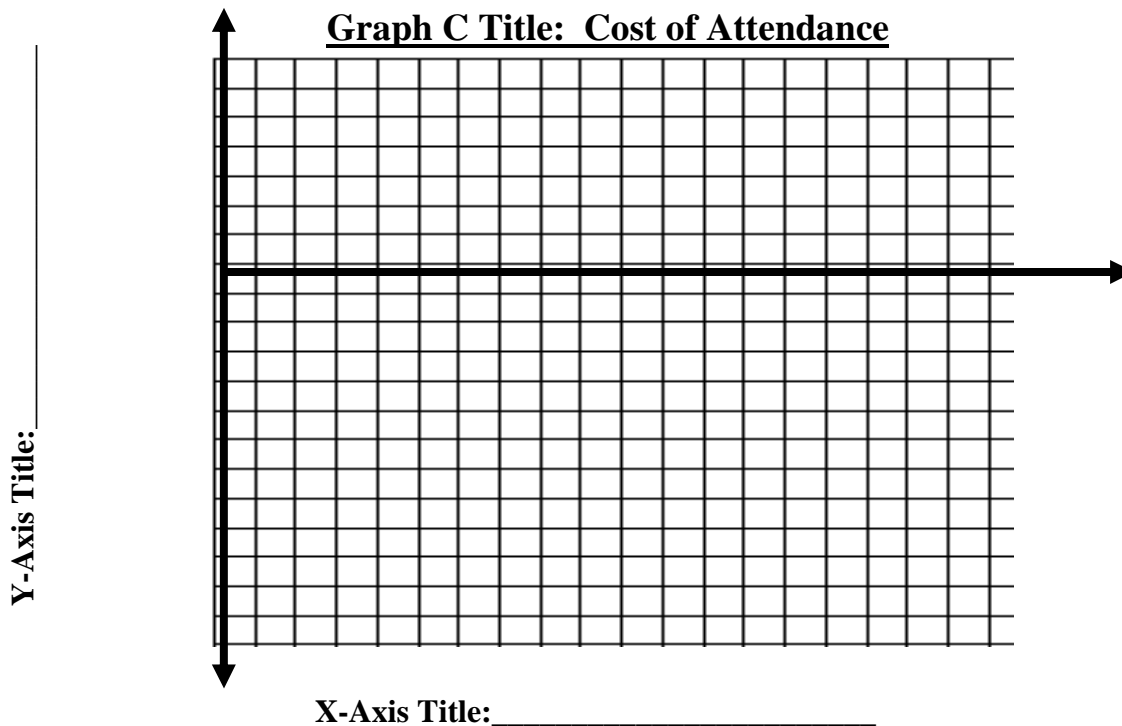
Overview: Now that you've answered the questions above for your specific school, fill in the data table below by adding the cost of attendance for each year you are in school (assume the amount does not change from year to year).

| Years | Cost of Attendance |
|--------------|---------------------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |

Creating the Graph

Overview: We will now be making a from the data table we just made! The graph will be looking at years in relation to cost of attendance. Fill out the information below first, then graph it!

| X-AXIS LABEL | X-AXIS SCALE | Y-AXIS LABEL | Y-AXIS SCALE |
|---------------------|---------------------|---------------------|---------------------|
| | | | |



Combining our Data Tables

Instructions: Use the information from the above data table and combine it with the data for the income you will make from your desired career. Year 1 is when you start college. If you are in college for 4 years, then in year 5 you will begin to add money from your career. For your data table negative money (loans) meaning debt and positive money (salary) being out of debt.

| <u>Years</u> | <u>Money</u> |
|--------------|--------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

Prepping our Graph

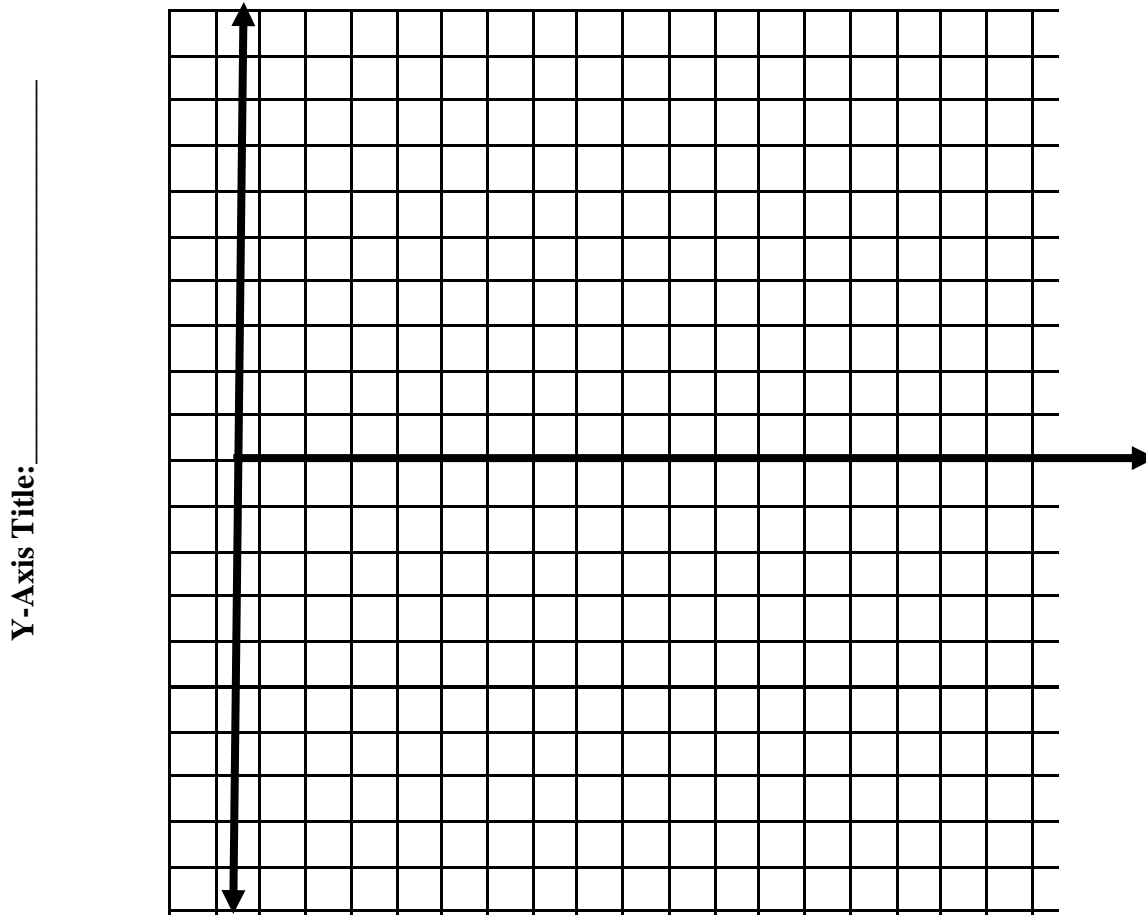
Instructions: Answer the following questions to prepare for your graph on the following page.

| | | | |
|---------------------|------------------------|------------------------|---------------------|
| X-Axis Label | Minimum X Value | Maximum X Value | X-Axis Scale |
| | | | |
| Y-Axis Label | Minimum Y Value | Maximum Y Value | Y-Axis Scale |
| | | | |

Combining our Graphs

Instructions: Use the data table and preparation table on the previous page to make your graph below.

Graph E Title: _____



WRITE THE EQUATION OF THE LINE THAT SHOWS THE POSITIVE SLOPE

| Answer the Question: | Explain what this means: | What is the equation of the line that models your income after college, in $y=mx+b$ form? |
|--------------------------|--------------------------|---|
| What is the x-intercept? | | |
| What is the y-intercept? | | |
| What is the slope? | | |

Analyzing our Graph

Instructions: Using the graph you made above, answer the following questions.

Part 1: Looking at the Work Years

| | | |
|---|--|---|
| 5. What was the first point of your work years? | 7. What is the slope between those points? | 8. If you extended this line so that it intersected the y-axis, what would your y-intercept be? |
| 6. What was the last point of your work years? | | |
| 9. What is the equation of the line between those points? | | |

Part 2: Analyzing the Overall Graph

| |
|--|
| 10. For how many years were you in debt? |
| 11. At what point did you start making a profit and get out of debt? <i>What is the name for this point?</i> |
| 12. After 20 years of working, where would you be financially? (How much money would you have overall, keeping at the same scale/slope?) |

Part 3: What about a Non-College Path?

We've done all this work assuming we will all go to at least 4 years of college. What if we decided not to choose this path? The following steps will guide you through making an equation for a non-college path and then graphing that equation on the above graph.

13. The average annual income of a person who does not go to college is \$26,000. After 30% of taxes are taken out, what is their net income? How much would they make each month?(Refer to pg. 12, problem 3a)

| | | | |
|----------------------------------|--|-----------------------------------|--|
| Yearly Income after taxes | | Monthly Income after taxes | |
|----------------------------------|--|-----------------------------------|--|

14. Use your yearly income after taxes from above to create the below table

| Years | Yearly Net Income After Taxes and Expenses |
|--------------|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

After you complete this data table, use the info to draw a second line on the above graph

Part 4: Looking at our Non-College Bound Graph

15. What is the equation of this Non-College Bound Graph?

Comparing the two graphs

16. Which situation does your graph show is better in the long term (a college path, or a non-college path)? Explain why.

17. If you answered “college path” to the question above, answer the following (if not, skip this question):

a. When would you make more money in your job after college?

b. How much more would you make in your college job after 10 years? After 20 years?

21. If you answered “non-college path” to question 19, answer the following (if not, skip this question):

a. We’ve been telling you all year, and research supports our claim, that you will make more money in a job after college than if you just got a job out of high school. Why do you think your graph and data do not support this claim? It is possible for such a situation to occur, why do you think it has happened for your?

22. Reflecting on your overall graph and all the math and research we have done, do you think that college is “worth it”? Why or why not? (5-7 sentences, specifically referring to your data or research)

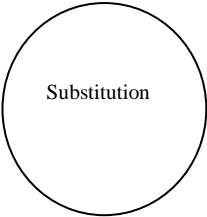
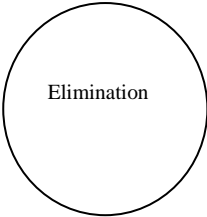
Solving our Systems of Equations

Instructions: Now that we have reviewed how to solve systems of equations, let's solve our equations that we created!

Part 1: Getting our Equations



| | |
|--|--|
| <u>Equation 1:</u> What was the equation you found of your after-college work path? | <u>Equation 2:</u> What was the equation you found of your non-college work path? |
|--|--|



Part 2: Solving our Systems of Equations

| | | |
|---|---|--|
| A) Solve the equations above by <u>Substitution</u>: | <u>Explain</u> all the steps you took: | |
| | | |
| B) Solve the equations by <u>Elimination</u>: | <u>Explain</u> all the steps you took: | |
| | | |
| How are these two methods similar and different when solving this problem | | |
| Different | Similar | Different |
|  | |  |

College Profiles

Instructions: Four colleges are profiled here for you, including a description of the school and the cost of attendance. Read through their profiles and highlight any important information. (More information, including listed majors, financial aid, and student life visit www.collegeview.com, www.collegeboard.com, www.collegedata.com or school website)

| College | Description | Cost of Attendance |
|---|---|---|
| <p style="text-align: center;"><u>CSULA</u></p>  | <p>Founded in 1947, California State University, Los Angeles, sits on a 175-acre campus just five miles from the Los Angeles civic and cultural centers. Cal State L.A. is fully accredited in all areas and is recognized as one of the most diverse campuses in the United States. Six colleges offer nationally recognized arts, business, criminal justice, education, engineering, humanities, nursing, and science programs, among others, all led by an award-winning faculty. The campus has more than 20,000 students and 205,000 alumni and offers more than 115 undergraduate and graduate degree programs. Also to note: no meal services are offered, most students commute or live off campus. www.calstatela.edu</p> | <p><u>In-state Tuition:</u> \$3,658 <u>Out-of-state Tuition:</u> \$13,828 <u>Room and Board:</u> \$5,118 <u>Books:</u> \$1,566 <u>Average % of Need Met: 78%</u></p> |
| <p style="text-align: center;"><u>UCLA</u></p>  | <p>UCLA is a public, comprehensive university. Founded as a Normal School in 1919, it later became the first branch of the University of California system. Programs are offered through the Colleges of Letters and Science; the Schools of Engineering and Applied Science, Dentistry, Law, Medicine, Nursing, Public Health, Public Policy and Social Research, and Theatre, Film, and Television; the Graduate School of Education and Information Science; and the Anderson School of Management. Its 419-acre campus is located in Westwood Village, within the corporate limits of Los Angeles. Campus architecture contains Tudor-Gothic, Italian Romanesque and modern styles. www.ucla.edu</p> | <p><u>In-state Tuition:</u> \$7,551 <u>Out-of-state Tuition:</u> \$27,572 <u>Room and Board:</u> \$11,932 <u>Other fees:</u> \$2,769 <u>Books:</u> \$1,551 <u>Average % of Need Met: 79%</u></p> |

| College | Description | Cost of Attendance |
|--|---|--|
| <p style="text-align: center;"><u>USC</u></p>  | <p>The University of Southern California, founded in 1880, is a private, comprehensive university. As a major research university, USC provides undergraduates with an extraordinary range of academic programs and encourages study and research across disciplines. This breadth of programs means that students can combine both strong liberal arts and professional studies. USC's 155-acre main campus location puts the incomparable resources offered by Los Angeles and southern California within easy reach. Students draw on these resources for research and internships, for exploring arts and community service and for working at the center of developing information technologies. Within this driven, forward-thinking, far-flung area, USC students maintain a strong sense of community. www.usc.edu</p> | <p><u>Tuition:</u> \$37,693 <u>Room and Board:</u> \$11,212 <u>Other fees:</u> \$2,180 <u>Books:</u> \$796 <u>Average % of Need Met: 99%</u></p> |
| <p style="text-align: center;"><u>Occidental College</u></p>  | <p>Occidental College, founded in 1887, is a private, liberal arts college, one of a few located in a major metropolitan area. The school is known for easy access to professors, research opportunities and the high level of diversity on campus, in the faculty and in the student body. Students with excellent writing skills graduate from Occidental, and the school attracts open-minded students, serious about themselves but concerned about their neighbor. Its 120-acre campus, including buildings of Italian Renaissance architectural style, is located in Los Angeles. www.oxy.edu</p> | <p><u>Tuition:</u> \$37,071 <u>Room and Board:</u> \$10,270 <u>Other fees:</u> \$2,080 <u>Books:</u> \$988 <u>Average % of Need Met: 100%</u></p> |