
GET RICH QUICK!

Background

Algebra is simply a way to describe the physical world. Anything that happens in the physical world can be expressed mathematically, usually by an equation.

The first civilian use of computers was in the business field, primarily calculating interest, profit and loss, and *what-ifying* various business scenarios.

Problem Statement

This problem is based on an entrepreneurs attempt to find at what level of production would his income be equal to his costs and what would happen at greater and lesser production amounts. The formulas to be used are the ones for revenues and production costs. Revenue uses $y = 5x$ where y is the total revenue and x is the volume in production units. Production costs uses $y = 4x + 200$ where y is the total production costs and x is the production in units.

Hypothesis

Student statement of expectations.

Equipment

Casio CFX-9850 Color Graphing Calculator

Procedure

1. Turn on CASIO CFX-9850
2. Press MENU
3. Select GRAPH (5)
4. Enter $y = 5x$
5. Press EXE

6. Enter $y = 4x + 200$
7. Press EXE
8. Select viewing window (shift F3)
9. Set x-min = 0; x-max = 500; y-min = 0; y-max = 1500;
scale = 10.
10. Press EXIT
11. Press F6 (the graph will be drawn)
12. Press F1 (trace)
13. Move “left-right” arrow keys to answer the following questions.

Data

Construct your data table here consisting of readings taken at one-hundred unit production intervals throughout the graph.

Results

State your interpretation of the data to include answers to the following questions:

1. When is the graph telling you about profit and loss to the left of the intersection? _____

2. When is the graph telling you about profit and loss to the right of the intersection? _____

3. What will be the break-even point (hint: would the ZOOM key help).

Conclusion

Relate your interpretation of the data.

Optional

Do the process twice more using different values in the formulas and discuss what would happen if production costs were cut or selling price was increased.

