

Life of Fred
Pre-Algebra 2 with Economics

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About This Book

THE FONTS OF TYPE

There are three fonts that are used in the book. The text of the book is written in this font. It is called Times New Roman.

When Fred is thinking, I will put his thoughts in this font.

When you, the reader, want to interject your thoughts, **you express yourself in this font.** Yes. You get to talk. You'll start two pages from now.

THE *Your Turn to Play*

At the end of each chapter there is an opportunity to play with the ideas in that chapter. The questions are not the:

- ⊗ 40 questions that are all alike
- ⊗ drill-and-kill and
- ⊗ boring questions

that you find in most math books.

I had fun writing the questions. In the first *Your Turn to Play*: “Let’s play with the paint-mixing function. . . .” In a later *Your Turn to Play*, we look at how would you find something to eat if you were the only person on Earth.

In Chapter 26 we talk about opportunity cost. In the *Your Turn to Play*, you are to invent economic reasons involving opportunity costs for why you might turn down an \$80/hour job at Terry’s Taffy & Taco.

The complete solutions are provided right after the questions—all worked out in detail. Don’t just read the questions and look at the



Genuine plastic

answers. You won’t learn much if you take that shortcut. Take out a piece of paper and write out your answers before you peek at mine. Put something over my answers if you are tempted to cheat. One reader suggested that I sell plastic Fred Heads to cover the answers.

THE BRIDGES

After every six or seven chapters, you will encounter **The Bridge**.



Small note to parents: The Life of Fred series is intended to be self-teaching. Learning how to learn by reading is an essential skill.

Your kids are old enough now. If you teach/tutor/help your kids, two things happen:

- ① They love it since they don't have to work so hard.
- ② They will not do as well in college because they won't have the practice of learning by reading.

Your opportunity to be involved is when they take their weekly Bridge exam. It's all explained right after Chapter 7.

After the last chapter in the book is **The Final Bridge**.

Of course, **The Bridges** are not just quizzes like the ones you might find in any other pre-algebra/economics book. You will learn a lot about Joe, Darlene and her mom. Even if you pass a **Bridge** on the first try, you will probably want to read (or even do!) the other tries.

CALCULATORS?

You've done the arithmetic part of your education. You know your addition and multiplication tables. If you can tell me instantly that seven times eight is equal to fifty-six, then feel free to use your calculator.

TYPOS AND ERRORS

I am human. My proofreaders are also. I've done every problem in this book twice. If you happen to spot an error, it would be a lovely gift to please let me know with an email to: lifeoffred@yahoo.com



As a thank you, I'll email you a list of all the corrections that other readers have reported.

ECONOMICS

Economics is only useful if there are other people around.

You will probably use your knowledge of economics much more than balancing chemical equations, computing inertia in physics, or counting your chromosomes in biology.

Economics is much more than shopping (despite the subliminal message on this page). Even life itself is about much more than shopping. **(Horrors! *Nobody ever told me that!*)**

You are going to learn a lot of important things in these pages:

- »» A sure-fire way to create 100% employment.
One simple law will do it.
- »» The difference between socialism and communism.
Most adults can't tell you the difference.
- »» The difference between freedom and liberty.
The word on our coins is "Liberty"—not "Freedom."
- »» The most surprising fact that *Each person in the world has a job that he or she can do at a comparative advantage to all other people.*
David Ricardo's Law of Comparative Advantage.
- »» The proof of Ricardo's Law of Comparative Advantage.
I know of no other economics book that proves this law.

And you'll also learn:

- »» How to do word problems, which is often the hardest part of beginning algebra.
- »» How to solve algebraic equations.
- »» How to run a successful hot dog business.
- »» What a real \$100,000 bill looks like.

There is so much. Let's just get started.

Okay. I, your reader, am ready.

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Chapter One

Summertime

Bittersweet.

The last day of the spring semester.

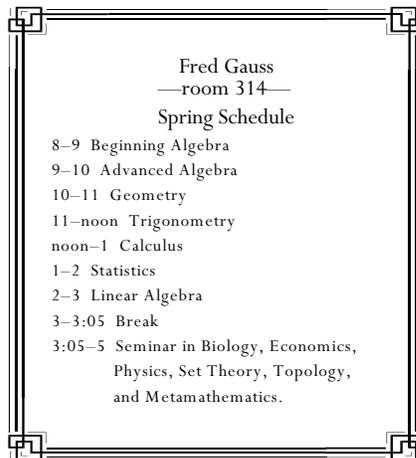
Fred had given his last final exam.

He had turned in the grades for his students.

He had picked up his monthly paycheck.

And all of endless summer lay ahead of him.

He walked back to his office in the warm Kansas sunshine thinking about the coming days. He stopped at his office door and took down his spring schedule.



Fred Gauss
—room 314—
Spring Schedule

8–9	Beginning Algebra
9–10	Advanced Algebra
10–11	Geometry
11–noon	Trigonometry
noon–1	Calculus
1–2	Statistics
2–3	Linear Algebra
3–3:05	Break
3:05–5	Seminar in Biology, Economics, Physics, Set Theory, Topology, and Metamathematics.

There was now a nine-hour hole in his day that needed filling. He entered his office and put his grade book on a shelf with the other nine grade books.

Fred thought to himself: Ten semesters of teaching at KITTENS University. They have passed so quickly. Sometimes life seems so evanescent.*

* ev-a-NES-ent Like a vapor that grows less and less until it disappears. Although Fred is only five years old, he has read many good books and his large vocabulary reflects his wide reading.

Fred looked out his office window and saw his students heading off in a hundred directions. He sat at his desk and looked at the books on his desktop. He had bookmarks in a dozen books that he was reading. For several years now, he had been working on reading Dante's *Divine Comedy* in Italian (*Divina Commedia*). Besides learning Italian, he had the pleasure of reading poetry in its original language. Poetry often loses a lot in translation.

He loved reading history. On his desk was *Caesar's Gallic War* which begins with the famous words: *Omnis Gallia est divisa in tres partes.**

Fred enjoyed biographies, science, math (of course), the sermons of Peter Marshall, books on the history of art, and all of the great literature of Western civilization listed in Clifton Fadiman's *The Lifetime Reading Plan* (third edition).

Today Fred turned to Christina Rossetti's poetry.** He opened the book at random and began to read "A Daughter of Eve":

*A fool I was to sleep at noon . . .
Oh it was summer when I slept,
It's winter now I waken. . . .
No more to laugh, no more to sing,
I sit alone with sorrow.*

Fred became a little teary-eyed. He shut the book. He could hear the hum of the vending machines in the hallway. He didn't know what to do with himself.

At least, Fred thought to himself, I don't have to worry about money. He took his paycheck out of his pocket and looked at it. For his nine hours of teaching each day, KITTENS University paid him \$500 per month.

The KITTENS pay schedule is very simple. It is a function of how old you are. When Fred was three years old, they paid him \$300 per

* "All Gaul is divided into three parts." Even though it wasn't poetry, Fred was reading it in the original Latin.

** She is often considered the most important woman poet in England before the twentieth century.

month. When he was four, his salary was \$400 per month. Now that he was five, he was making \$500 per month.

He pictured writing on a blackboard:

Let x = my age.

Then $100x$ = my monthly salary.

My salary is a function of my age.

You tell me my age, and I'll tell you my salary.

Then Fred realized that he wasn't teaching right now. He was alone in his office. The semester was over.

Intermission

The whole idea of **function** is wrapped up in the last sentence Fred wrote on his mental blackboard:
You tell me this, and I'll tell you that.

★ If you tell me where you live, I can tell you your ZIP code.

★ If you tell me how old you are, I can tell you whether you are older than Fred.

★ If you tell me what paint colors you mixed together, I can tell you your final color.

Your Turn to Play

1. Let's play with the paint-mixing function.

If you tell me red + blue, I will say purple.

This could be written as red + blue \rightarrow purple.

Now it's your turn.

blue + yellow \rightarrow ?

black + white \rightarrow ?

red + white \rightarrow ?

2. Do functions always involve numbers? Give a reason for your answer.

3. In an office down the hall from Fred's is a man that KITTENS hired this semester to teach about the music of ancient Greece. His specialty is the popular tunes of that period. His paycheck is \$6,700. How old is he? 

4. Eight percent of our music teacher's \$6,700 salary is taken out for Social Security. How much is that deduction?

5. Every Monday when  walks down the hall, he is singing Plato's Waltz. Every Tuesday, he sings Aristotle's Tango. Every Wednesday, he sings Pythagorus's Melody in Blue, etc.

If you tell me the day of the week, I can tell you what  is singing.

The **domain** of this function is the days of the week.

The **codomain** is the set of all ancient Greek songs.

What is the domain of the function that Fred wrote on his mental blackboard (on the top of the previous page).

6. Each month  spends \$134 of his salary on Greek sheet music. What percent of his salary is that? (\$134 is what percent of \$6,700?)

..... **COMPLETE SOLUTIONS**

1. blue + yellow → green
black + white → gray
red + white → pink

2. In the previous question, we looked at a function involving paint colors. There were no numbers mentioned. Functions do not have to involve numbers.

3. We know that at KITTENS University if x = your age, then $100x$ = your monthly salary. Since he receives \$6,700, he must be 67 years old.

4. 8% of 6,700 = ? $8\% \rightarrow 8\% \rightarrow 0.08$

We know both sides of the *of*, so we multiply.

$$0.08 \times 6,700 = \$536.$$

5. In the KITTENS salary function, you tell me the age of the teacher, and I will tell you his monthly salary. The domain is the set of all possible ages of teachers.

6. $134 = ?\%$ of 6,700. We don't know both sides of the *of* so we divide the number closest to the *of* into the other number.

$$\begin{array}{r} 0.02 = 2\% \\ 6700 \overline{)134.00} \end{array}$$

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If you would like to
learn more about
the books written
about Fred . . .

FredGauss.com