Questions . . .

- Something you're good at

- Something else you're good at

- One more thing you're good at

- Something you're proud of

- Something you did that helped you accomplish this

- A goal you have for this class.

Problem?
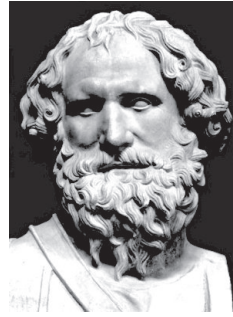
A man bought a horse for $50 and sold it for $60.

He then bought the horse back for $70 and sold it again for $80.

What do you think was the financial outcome of these transactions?

Algebra - the Early Years
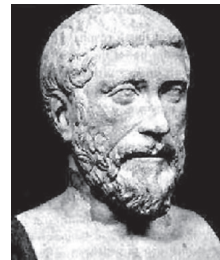

Pyramid of Giza (2551 BCE)

Archimedes 287 BCE

Diophantus
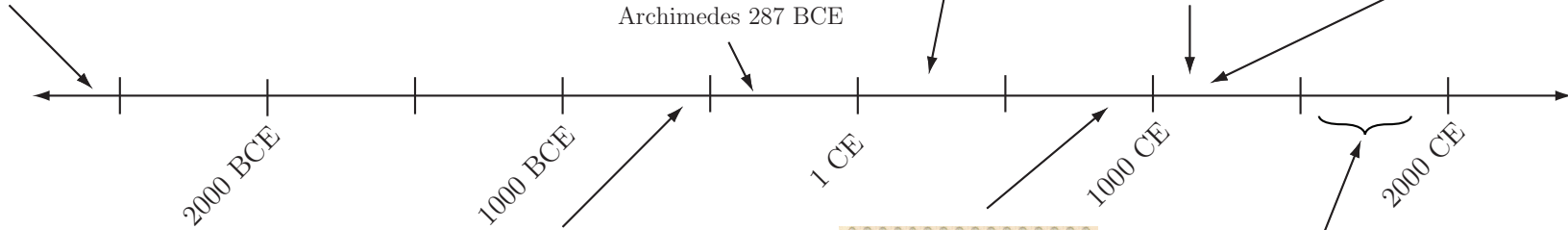200 CE

Bhaskara 1114

First Translation of algebra
into latin:
Liber Algebrae et Almucabala
Robert of Chester (Segovia)
1145 CE

2000 BCE

1000 BCE

1 CE

1000 CE

2000 CE

Pythagoras 570 BCE

Abū Abdallāh Muhammad
ibn Mūsā al-Khwārizmī 780 CE
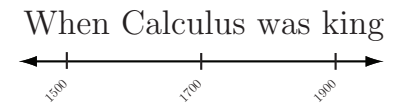
When Calculus was king

1500   1700   1900

Abu Algebra

Abu Ja'far Mohammed ibn Musa Al-Khwarizmi

Abu Algebra

Abu Ja'far Mohammed ibn Musa Al-Khwarizmi

Father of Ja'far, Mohammed, son of Moses, native of the town of Al-Khwarizmi

The Good Book

Al-Kitab al-mukhtasar fi hisab al-jabr wa-l-muqabala

The Good Book

Al-Kitab al-mukhtasar fi hisab al-jabr wa-l-muqabala

The Compendious Book on Calculation by Completion and Balancing

Where . . .

The Silk Road

Danube • Volga • Dnieper • Don • Irtysh • ALTAY MTS. • GOBI DESERT • Great Wall

Rome • Black Sea • Byzantium (Constantinople) • Caspian Sea • TIAN SHAN • Dunhuang • Anxi • Chang'an

Antioch • Palmyra • Tigris • Amu Darya • Toshkent • TAKLA MAKAN • KUNLUN MTS. • NAN SHAN

Alexandria • Bukhoro • Samarqand • PAMIRS • Kashi • Hotan • Huang He

Seleucia • Merv • Bactra • Kābul

Euphrates • Indus • HIMALAYAS • Ganges • Yangtze • Mekong

Red Sea • Arabian Sea • Irrawaddy

600 | km | mi

— Main Silk Road — Eurasian Steppe Route — Main Connecting Routes

N

I remember when I was in college, I majored in sociology, and all sociology majors had to take a course that was required called statistics. And statistics can be very complicated. You've got to have a mathematical mind, a real knowledge of geometry, and you've got to know how to find the mean, the mode, and the median. I never will forget. I took this course and I had a fellow classmate who could just work that stuff out, you know. And he could do his homework in about an hour. We would often go to the lab or the workshop, and he would just work it out in about an hour, and it was over for him. And I was trying to do what he was doing; I was trying to do mine in an hour. And the more I tried to do it in an hour, the more I was flunking out in the course. And I had to come to a very hard conclusion. I had to sit down and say, "Now, Martin Luther King, Leif Cane has a better mind than you." Sometimes you have to acknowledge that. And I had to say to myself, "Now, he may be able to do it in an hour, but it takes me two or three hours to do it." I was not willing to accept myself. I was not willing to accept my tools and my limitations.

But you know in life we're called upon to do this. A Ford car trying to be a Cadillac is absurd, but if a Ford will accept itself as a Ford, it can do many things that a Cadillac could never do: it can get in parking spaces that a Cadillac can never get in. And in life some of us are Fords and some of us are Cadillacs. Moses says in "Green Pastures," "Lord, I ain't much, but I is all I got." The principle of self-acceptance is a basic principle in life.

Now the other thing about the length of life: after accepting ourselves and our tools, we must discover what we are called to do. And once we discover it we should set out to do it with all of the strength and all of the power that we have in our systems. And after we've discovered what God called us to do, after we've discovered our life's work, we should set out to do that work so well that the living, the dead, or the unborn couldn't do it any better. Now this does not mean that everybody will do the so-called big, recognized things of life. Very few people will rise to the heights of genius in the arts and the sciences; very few collectively will rise to certain professions. Most of us will have to be content to work in the fields and in the factories and on the streets. But we must see the dignity of all labor.

When I was in Montgomery, Alabama, I went to a shoe shop quite often, known as the Gordon Shoe Shop. And there was a fellow in there that used to shine my shoes, and it was just an experience to witness this fellow shining my shoes. He would get that rag, you know, and he could bring music out of it. And I said to myself, "This fellow has a Ph.D. in shoe shining."

What I'm saying to you this morning, my friends, even if it falls your lot to be a street sweeper, go on out and sweep streets like Michelangelo painted pictures; sweep streets like Handel and Beethoven composed music; sweep streets like Shakespeare wrote poetry; sweep streets so well that all the host of heaven and earth will have to pause and say, "Here lived a great street sweeper who swept his job well."

MLK

Math 110
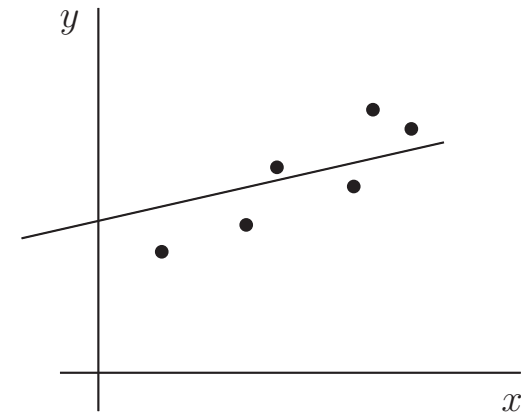
Fall 2010   Daily 11:10 – 12:00 (Section AC)

Instructor: Jon Freedman
Office: 7216
Phone: 738 – 7032
e-mail: freedmanj@smccd.edu
Website: www.smccd.edu/accounts/freedmanj/

Office Hours: M 2 – 3; Tu 8 – 8:30; 1:15 – 2; W 8 – 8:30; 1:15 – 2; Th 1:15 – 2:30; F 8 – 8:30
and most times I'm not in class by arrangement – ask.

Important Dates: Last day to Add this course: Tuesday, August 31

                    Last day to Drop this course without a W: Friday, September 10

                    Last day to Withdraw from class: Tuesday, November 16

                    Holidays: 9/6; 11/12; 11/26 – 7

                    Last regular class: Friday, December 10

                    Final Exam (comprehensive):   Wed., Dec. 15   11:10 – 1:40 pm

Assignments: Assignments will be posted online (through My Math Lab – code included with the book) or given directly from the book. Book assignments consist of $\boxed{\text{boxed}}$ problems (assigned), un-boxed problems (recommended) and discussion problems (for use during the next class). There will be weekly homework quizzes based on assigned problems. There will be no make-up quizzes given. The last class of every week the book assignments for the week will be collected. 50% of your book homework grade comes from HW quizzes and the other 50% comes from completed assignments. If you do not complete the assignment in time for the quiz, you may receive partial credit (50%) for getting the boxed problems checked (and signed off) in the TLC and submitting them with the assignments due by the following Monday.

Grading:

Assignments (homework, classwork, quizzes) (30%)

$3 - 5$ Tests (50%)

Final (20%)

I will drop your worst test score (Not the final). There will be no makeup tests. If you are late for a test you will have only the remaining time to complete the test (so don't be late). If you know you are going to miss a test date, contact me at least three days in advance and we can arrange an alternate test to be taken in advance of the class test date.

I will excuse two homework quizzes and one week-long assignment set (or drop your lowest score if you submit all of them). I will drop your worst quiz. There will be no makeup quizzes.

Attendance: You will not be graded directly on your attendance. However, your involvement in class and your participation in the process of discovering concepts will be fundamental in your understanding of algebra. Tests will be based largely on material discussed and practiced during class. You might want to note that historically very few students with more than 6 absences have passed this class.

Withdrawal Policy: If you decide to drop this class you must do so formally either by using WebSMART or by filing the correct form with the registrar's office. If you miss more than 10 classes and still desire to remain in the class you must meet with me and convince me that you can learn the material necessary to pass the class.
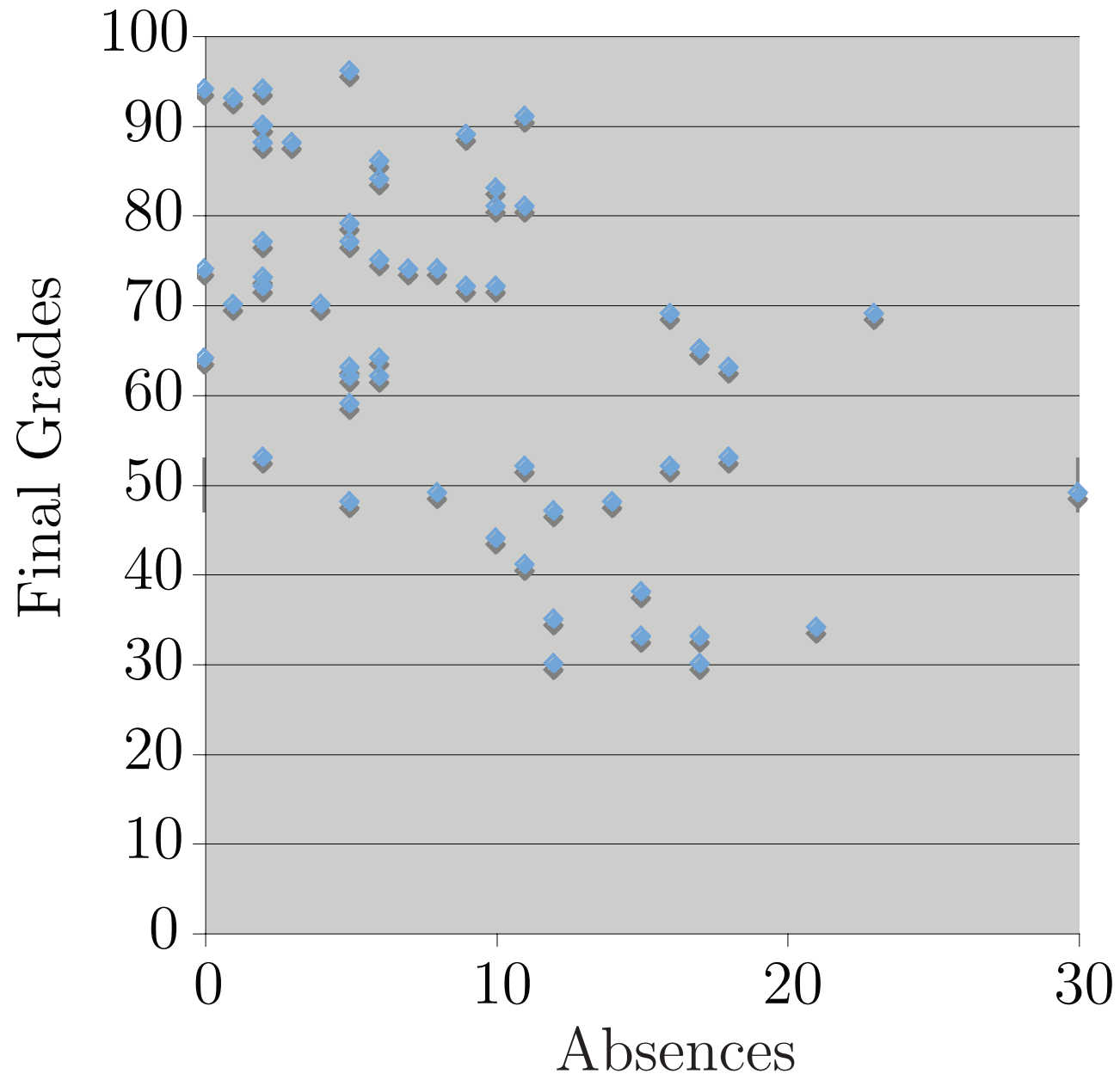
We will cover the majority of Chapters 1 through 7 as well as some supplemental materials.

Course Contents: Big Ideas:

1. Through real world applications students will create, manipulate, and interpret mathematical models of relationships defined by either a constant rate of change or a constant relative rate of change.

   Interpretation: Given real data and a real world situation, you will generate the appropriate linear or exponential model and use it to describe the behavior of the data as well as anticipate future behavior.

2. Students will recognize, apply, and interpret rule of 4 representations of key course elements.

   Interpretation: You will develop a reference guide of multiple representations (graphic, symbolic, numerical/data, verbal/applied) of linear and exponential functions and their applications.

3. Students will develop skills and attitudes for effectively solving problems at an introductory algebra level.

   Interpretation: You will be exposed to a variety of problem solving situations culminating in a portfolio of your accumulated work. Using your portfolio you will evaluate your progress as a problem solver.

HELP:
- TLC (Learning Center, building 5)

- MESA (7-7309)

- Online through MML videos and examples

- Office Hours with me

- Study groups

Other sections:

Hough	MWF	8:10 – 9:40	5132B
Leach	MWF	12:10 – 1:40	8302
Deamer	Daily	9:10 – 10:00	PH-308

Offices on 3rd floor of building 7.

Pascal's Triangle

$$1$$
$$1 \quad 1$$
$$1 \quad 2 \quad 1$$
$$1 \quad 3 \quad 3 \quad 1$$
$$1 \quad 4 \quad 6 \quad 4 \quad 1$$
$$1 \quad \underline{} \quad \underline{} \quad \underline{} \quad \underline{} \quad 1$$
$$1 \quad \underline{} \quad \underline{} \quad \underline{} \quad \underline{} \quad \underline{} \quad 1$$
$$1 \quad \underline{} \quad \underline{} \quad \underline{} \quad \underline{} \quad \underline{} \quad \underline{} \quad 1$$
$$1 \quad \underline{} \quad \underline{} \quad \underline{} \quad \underline{} \quad \underline{} \quad \underline{} \quad \underline{} \quad 1$$

Pascal's Triangle

```
                        1
                    2       2
                 3      4       3
              4     7       7      4
           5     11     14     11     5
        6     __     __     __     __     6
      7     __     __     __     __     __     7
    8     __     __     __     __     __     __     8
  9     __     __     __     __     __     __     __     9
```