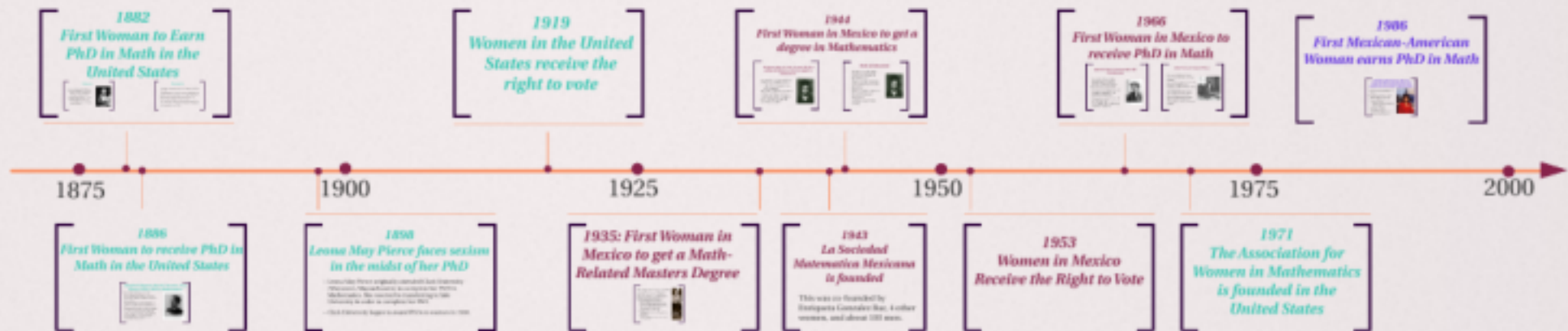


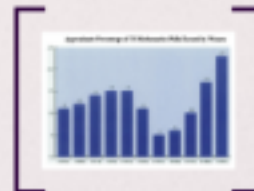
Pioneers of Math: The Women Before Us

How do the milestones for Women in Mathematics in the United States compare with Mexico in the late 1800's and 1900's?

By Sarah Archuleta



Year	Country	Milestone
1875	USA	1886 First Woman to receive PhD in Math in the United States
1882	USA	First Woman to Earn PhD in Math in the United States
1890	USA	Lenna May Pierce faces sexism in the midst of her PhD
1919	USA	Women in the United States receive the right to vote
1935	Mexico	First Woman in Mexico to get a Math-Related Masters Degree
1943	Mexico	La Sociedad Matemática Mexicana is founded
1944	Mexico	First Women in Mexico to get a degree in Mathematics
1953	Mexico	Women in Mexico Receive the Right to Vote
1966	Mexico	First Woman in Mexico to receive PhD in Math
1986	Mexico	First Mexican-American Woman earns PhD in Math



1882

First Woman to Earn PhD in Math in the United States

Obstacles

- Christine Ladd earned her PhD in math at Johns Hopkins University.
- Was not allowed to receive the PhD due to being a woman.
- Ladd was only allowed to attend progressed lectures.
- Continued to work with Johns Hopkins University for the next several decades.



Redemption

- Became only woman on Johns Hopkins Faculty in 1904.
- After decades of work with Johns Hopkins, they offered her an honorary PhD. Ladd responded by insisting she either receive the PhD she earned 41 years prior, or none at all.
- In 1926, Johns Hopkins University awarded her with the PhD she originally earned. She passed away just four years later.

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1886

First Woman to receive PhD in Math in the United States

Winifred Edgerton Merrill Becomes First Woman with a PhD in Mathematics

- Columbia College (prior to becoming Columbia University) refused to grant graduate degrees to women.
- Edgerton had the backing of the president, Frederick A. P. Barnard.
- Edgerton became the first woman in the United States to officially earn a PhD in Math, and only the second PhD ever awarded by Columbia University.



An 1886 photo of Winifred Edgerton.

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An 1883 photo of Winifred Edgerton.

1898

***Leona May Pierce faces sexism
in the midst of her PhD***

- Leona May Pierce originally attended Clark University (Worcester, Massachusetts) to complete her PhD in Mathematics. She resorted to transferring to Yale University in order to complete her PhD.
- Clark University began to award PhDs to women in 1900.

1919

***Women in the United
States receive the
right to vote***

1935: First Woman in Mexico to get a Math-Related Masters Degree

Rita Lopez de Llergo becomes the first woman to earn a Masters Degree in Physical Mathematical Sciences

- Rita earned her Masters at Universidad Nacional Autónoma de México (UNAM) in Mexico City
- She was the first woman to complete the History of Mathematics course offered at the university.
- NOTE: Her degree was more based in Geography.



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1943
La Sociedad
Matematica Mexicana
is founded

This was co-founded by
Enriqueta Gonzalez Baz, 4 other
women, and about 100 men.

1944

First Woman in Mexico to get a degree in Mathematics

Enriqueta Gonzalez Baz becomes the first woman in Mexico to receive a degree in mathematics.

- Faced lack of support from her family, especially her father.
 - "que antes nada deberian de ser mujeres"
- Her father made her drop out of high school to learn to be a homemaker. After a couple of years, she had enough and went back to school.



Path of Education

- Enriqueta took night classes at Colegio de San Idelfonso
- Studied to be a teacher at Escuela Nacional de Maestros
- Studied mathematics at Escuela Nacional Preparatoria
- Got her degree from UNAM



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1953

***Women in Mexico
Receive the Right to Vote***

1966

First Woman in Mexico to receive PhD in Math

Sylvia de Neymet Urbina receives PhD in Mathematics

- Studied in France, then finished her Bachelor's degree at UNAM in 1961
- She then entered in the Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, where she earned her PhD in 1966.
- She completed her thesis in Algebraic Topology.



About Sylvia de Neymet Urbina

- She was considered "poco femenina" due to her interest in math.
- She received support from both her father, who was an engineer, and her mother, who was a feminist.
- She became the first female full-time professor at the Escuela Superior de Física y Matemáticas del IPN, and taught more than 50 university courses.



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La primera doctora en matemáticas. Foto: Marco Míguez.

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1971

***The Association for
Women in Mathematics
is founded in the
United States***

1986

First Mexican-American Woman earns PhD in Math

Ruth Gonzalez Becomes the First (American born) Mexican American Woman to earn a PhD in Mathematics

- Received PhD from Rice University
- Both her parents were born in Mexico
- Earned Master's degree in Texas while researching with Applied Research Laboratories at the University of Texas
 - Helped develop mathematical models to predict submarines to prevent detection
- Thesis titled "Ornstein Decompositions for Two-Dimensional Elliptic Operators on Vector and Parallel Machines"



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Tabla 4
 Porcentaje de mujeres en docencia
 e investigación en Matemáticas en México

Institución/Estado	Posgrado	Planta Académica	Mujeres	% Mujeres
Instituto de Matemáticas, UNAM (D.F., Morelia y Cuernavaca)		95	11	11.5
Instituto de Inv. Matemáticas Aplicadas y en Sistemas UNAM (D.F.)		58	13	22.4
Departamento de Matemáticas. CINVESTAV. IPN (D.F.)	Doctorado Maestría	23	2	8.6
Departamento de Matemática Educativa. CINVESTAV. IPN (D.F.)	Doctorado Maestría	28	10	35.7
Departamento de Matemáticas. UAM-I (D.F.)	Doctorado Maestría	61	9	14.7
Departamento de Matemáticas. Facultad de Ciencias. UNAM (D.F.)	Doctorado Maestría	99	33	33.3
Escuela Superior de Físico - Matemáticas. IPN (D.F.)	Maestría	9	0	0
Instituto de Econometría, Estadística e Informática. EP (Chapingo)	Maestría	95	15	15.7
Instituto Tecnológico de Estudios Superiores (Monterrey)	Maestría	6	2	33.3
Total		591	109	18.4

Data from 1998-2002

Approximate Percentage of US Mathematics PhDs Earned by Women

