

PULITZER PRIZE AND TONY AWARD WINNER!

The Walnut Street Theatre  
production of

# proof

by David Auburn

# Summary

$$bx + 23n = 55$$

Proof explores the world of mathematics and mental illness through the mourning daughter of a genius mathematician, Robert, who has recently passed away. Catherine's story jumps from the past, when she took care of her mentally ill father, to after his death.

The play opens with Catherine and Robert on their porch celebrating Catherine's birthday. Through the conversation it is clear they both have a shared talent and passion for mathematics. Robert is mentally ill as a byproduct of his genius and Catherine is concerned she shares his illness as well. Robert reveals that he is dead and Catherine is imagining the conversation. At the same moment Hal enters. Depending on each viewer's perspective he may have woken Catherine up from a dream or an hallucination. Hal is going through Robert's notebooks from when he was ill looking to see if there is any logic to what he wrote. Catherine is sure there is not, and she suspects Hal is trying to steal her father's work and pass it off as his own. She finds one of Robert's old notebooks in his coat, kicks him out and calls the police. Hal calms her down and shows her that he took the notebook because he found something Robert wrote about Catherine in it. He was going to give it to her as a birthday present.

Claire, Catherine's sister, has come home from New York to work out funeral arrangements. She is concerned Catherine has inherited their father's mental illness as well as his genius. When she tries to discuss this with Catherine she becomes defensive. Hal comes by for the funeral which turns into a party at the house. Both a little drunk, Hal and Catherine begin talking on the porch about their love for mathematics and Hal talks about Robert's work. He admits he is concerned his best years are behind him and he will never make a mark in his field. The two end up kissing and confess they were always attracted to one another.

The next morning Catherine gives Hal a key that she keeps around her neck, and tells him it opens a drawer in her father's desk. Claire comes downstairs and after brief small talk asks Catherine if she would go back to New York with her. She suggests Catherine could get mental help in New York as well. During their argument

Hal returns and is holding a notebook with an important proof in it, and Catherine claims she wrote it.

The next scene flashes back to when Robert was alive. Catherine and Robert are discussing what they would like for dinner and she tells him she is going back to school since he is getting better. Robert seems shocked and reminds her how hard school is. Hal comes in, interrupting their argument, to discuss his recent work with Robert who is helping him get his Ph. D. Robert is excited to discuss Hal's work, and he confesses he is afraid he has lost his talent, and then remembers it is Catherine's birthday. To Robert, this proves he has lost his knack for numbers.

The following scene picks up back with Catherine admitting she wrote the proof. Neither Hal or Claire believe she could have written it. This angers Catherine. Hal thinks she does not know the math to figure out something that complex, and Claire is conflicted between wanting to trust her sister but not thinking she is well.

The next day Hal comes over to check on Catherine, and Claire will not let him in. She gives him the proof and tells him to let her know if he figures anything out.

The next scene flashes to Catherine coming back from school to check on her father. Robert is on the porch working. He seems happy, but when Catherine checks his work she sees it is just scribble, and she takes him inside.

A week later, Claire is on the porch, and Catherine comes outside to talk to her. They discuss moving Catherine to New York. Hal stops by, and he confesses he thinks Catherine wrote the proof. He wants her to stay in Chicago. Hal agrees to read through the notebook with her, and they sit down and begin discussing the proof.

$$\begin{array}{r} 2.7 \\ \hline 8 \end{array}$$



$$5x + 23n = 55$$



# Characters

**Hal** is the twenty-eight year old former student of Robert. He has a great deal of respect for Robert as a mathematician and once dreamed he would contribute to mathematics in similar ways, but now feels he is too old to contribute at all. The audience first meets Hal when he is going through Robert's old notebooks looking to see if he wrote anything significant while he was ill. Catherine is suspicious he is trying to steal Robert's work and pass it off as his own. Hal's intentions are never completely clear throughout the play, although he claims he is going through his notebooks for his father's sake and for the sake of mathematics. He gains Catherine's trust after they sleep together but once he has the proof he distances himself from her and does not side with her in the way she expects him to. After he shares the proof with his colleagues he comes to believe Catherine could have written it and goes back to her. She accuses him of trying to manipulate her and he does not deny it, but says "you're giving me way too much credit." Hal genuinely loves math and is willing to dedicate the majority of his time to it, but whether he has the same dedication to others is unclear.

**Catherine** is the twenty-five year old daughter of Robert and sister of Claire. She delayed her college education so she could stay at home with her father while he was ill. Now that he is dead she is stuck between where she wants her life to go and where it has been. While he was alive Catherine got along well with her father and had a great deal of patience with him. When Claire offered to help pay for Robert to be in a hospital Catherine refused and chose to stay at home so he could be cared for by family. She was willing to give up her future to care for him. While she went to school after he got better, she drops out the moment she discovers he is ill again and promises she will not leave. Her patience with Claire is the exact opposite. Catherine is open about her feelings toward her sister to both her father and Hal. After Robert dies she becomes upset about most things Claire does from buying food, to hosting guests after the funeral. She has a similar attitude towards Hal while he is going through Robert's old papers after his death. Her different attitudes could be for multiple reasons. She is mourning the loss of her father and has a radical shift from caring for him to only having herself to care for. She feels the need to protect not only herself but also the memory of Robert. Catherine may also be afraid of all the choices she needs to make and is able to make. Her impatience could be a reflection of that fear.

**Claire** is Catherine's older twenty-nine year old sister. Unlike her sister she is not a genius, but works hard and is successful. She has been financially providing for her sister and father while he was ill. Now that Robert has passed she has taken on most of the responsibilities at home, with the funeral, and with the estate. Although the two sisters argue often Claire loves her sister and holds herself responsible for what happens to her. When she is first introduced in the play she is encouraging Catherine to eat a banana, take care of her hair, and mentioning there was no food in the house when she came. She becomes protective of her sister when she realizes there is a romantic relationship between her and Hal, and she won't let him see her after he finds the proof because he upset her. Her protective attitude towards her little sister extends when they are away from one another as well. Claire helped pay for Catherine's College, and encourages Claire to move in with her in New York, because she is worried about her mental health. This is different then the way she acted toward her father when he was ill. She did not want to care for him herself and suggested putting him in a hospital. These two opposite responses could be because she had a bad relationship with her father, but could also be because she feels so protective of her sister.

**Robert** is the father of Catherine and Claire. He is a retired teacher at University of Chicago, where he worked until he became mentally ill, believing aliens were communicating to him through the Dewy Decimal system. Robert is also a graphomaniac, meaning he has an obsessive need to write. His illness went away for a time and he was able to go back to the university, but he eventually became ill again and unable to work. Robert's personality contrasts between when he is healthy and when he is not. The unhealthy Robert is calm and loving, and he accepts Catherine's choices and wants her to be successful. He encourages her to pursue her career and "get the machinery going," meaning her brain, when she is depressed. Robert also wants to share his work with Catherine and hear about her work, showing he sees her as an intellectual equal. When he is healthy he argues much more and is rude to Catherine and others. One reason for this contrast could be that Robert is happiest when he is working whether he is healthy or not. Catherine asks him if he was happy when he was sick and he responds, "Yeah, I was busy." Like many mathematicians in the story he is concerned that his best years are behind him and that he won't contribute to the field any more. This is why his is so happy that Catherine is talented at math as well. She is a part of his contribution to mathematics.

# About the Author



"YOUNG playwrights dream of having a runaway success like *Proof*." *New York Times*

David Auburn was born in Chicago, and raised in both Ohio and Arkansas. His father was the Dean of the College of Art and Sciences at University of Arkansas, his mother was the assistant deputy director of the Division of Aging and Adult Services for the Arkansas Department of Human Services. After High school he moved back to Chicago where he attended University of Chicago and studied English Literature. After College he was a writing fellow for Steven Spielberg's Amblin Productions. Auburn went onto Julliard for writing and began perfecting his skills. He has received the Guggenheim Foundation Grant, the Helen Merrill Playwriting Award, and Joseph Kesselring Prize for Drama. In 2001 he won the Pulitzer Prize for *Proof*.

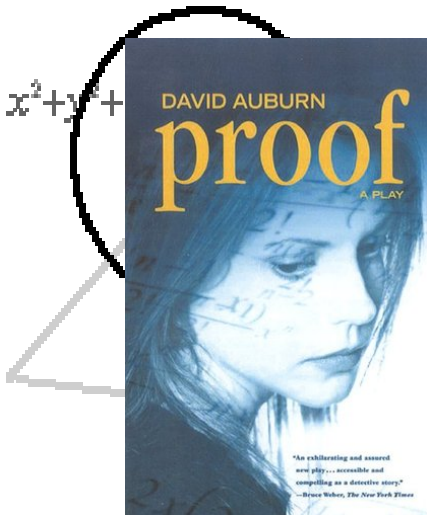
Auburn's other works include *Skyscraper* performed at the Greenwich house; *Fifth Planet*, by New York Stage and Film; *Miss You*, HBO County Arts Festival; and *The Next Life*, Julliard School. He has been published in *Harpers Magazine* and *New England Review*.

For more information on David Auburn go to:

<http://www.pulitzer.org/biography/2001-Drama>

<http://www.encyclopediaofarkansas.net/encyclopedia/entry-detail.aspx?entryID=5932&media=print>

## History of the Play



*Proof* opened off Broadway in 2000 before it moved to the Walter Kerr Theatre on Broadway where it had a run of 917 performances. The original cast featured Mary Louise Parker, and Ben Shenkman. Later in its run the cast included Anne Heche, Neil Patrick Harris, and Jennifer Jason Leigh. The Broadway production won a Tony Award for Best Play and David Auburn's script won the Pulitzer Prize. *Proof* has been performed all over the world in over 30 languages. In 2005 Miramax released the movie version of the script starring Gwyneth Paltrow, Anthony Hopkins, and Jake Gyllenhaal.

For more information on *Proof* visit:

<http://www.nytimes.com/2004/03/21/arts/theater-david-auburn-s-burden-of-proof.html> page-wanted=1

<http://www.imdb.com/title/tt0377107/>

# What is a Proof?

The goal of mathematics is to better understand the rules and systems of numbers, geometry, and algebra and develop new ways to look at these rules and systems. As mathematicians study rules they come up with conjectures which are ideas that are believed in mathematics to be true but have not been proven. One example of this is the Riemann Hypothesis. "The Riemann hypothesis asserts that all Interesting solutions of the equation  $\zeta(s) = 0$  lie on a certain vertical straight line" (Clay Mathematics Institute). A Proof of the Riemann Hypothesis would radically effect the math world because it would prove the above statement is true not just a conjecture. Although the script never specifies what proof Catherine solves it is suspected it may be Riemann's Hypothesis. For more information on proofs and the Riemann Hypothesis visit.



[http://www.claymath.org/millennium/Riemann\\_Hypothesis/](http://www.claymath.org/millennium/Riemann_Hypothesis/)  
[http://www.icoachmath.com/math\\_dictionary/conjecture.html](http://www.icoachmath.com/math_dictionary/conjecture.html)  
<http://www.math.uconn.edu/~hurley/math315/proofgoldberger.pdf>

## Questions to think about during the show . . .

- Think of the idea of "proof" in each characters relationships. What does each character need to prove?
- Do you think Hal has good intentions looking through Robert's notebooks? Is he trustworthy with Catherine's Proof?
- Does Claire care about Catherine as much as she claims?
- What do you think Claire's relationship with Robert was like before he died?
- Is Catherine being honest when she says she wrote the Proof?
- Did Catherine really inherit her father's genius? Did she inherit his illness?

"It's more that in any human situation there is the potential for humor and pathos, both. I like stories that surprise you with sudden shifts of mood or tone, so that as an audience member you never quite settle into complacency, feeling, "Oh, this is serious stuff, I'll just sit here nodding," or, "This is a comedy, there's nothing I need to worry about taking seriously.""

David Auburn in an interview with *Otium*  
a University of Chicago online literary magazine [otium.uchicago.edu](http://otium.uchicago.edu)



# Discussions after . . .

What is your initial reaction to the play?

What is your impression of these characters?

Which characters do you sympathize with?

Read through scene 2 aloud. What lines or pieces of dialogue change for you hearing them read by different people? How does the actor's performance effect your perception of the characters?

How does the setting of a porch lend to the conflict in the play?

Is their a true connection between genius and insanity?

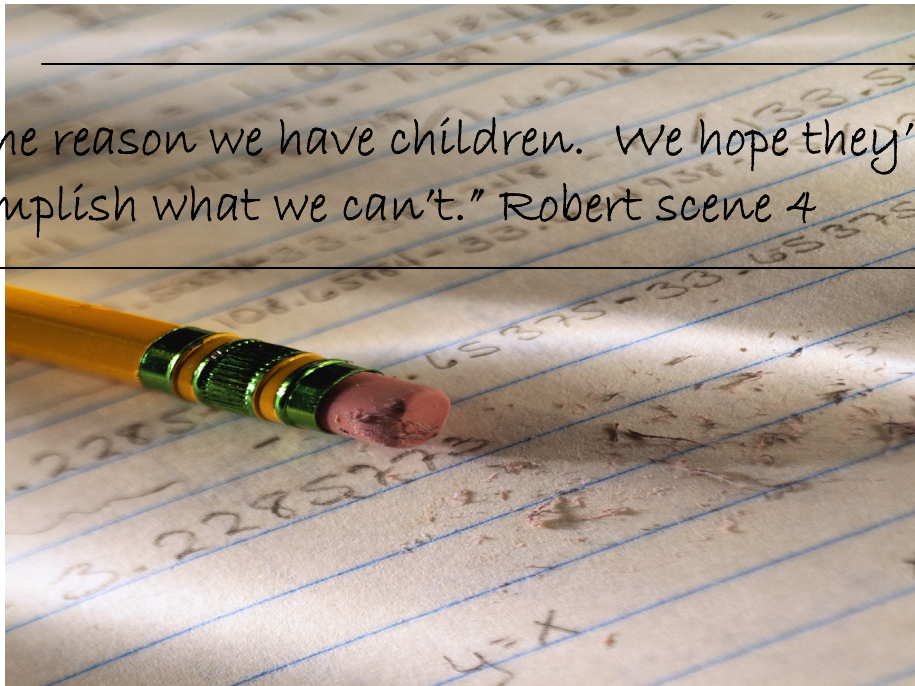
Is it possible to be born with talent or does talent require education? Can talent be lost?

What role do family ties play in the plot?

How does the Proof represent Catherine's need for control?

Does Claire understand her sister's needs?

$$1 + 2 = 3$$



"It's part of the reason we have children. We hope they'll survive us, accomplish what we can't." Robert scene 4

$$5x + 2 = y$$



# WALNUT STREET THEATRE

*Bringing the Performance to You*



Walnut Street Theatre is the oldest theatre in America, celebrating 200 years in 2009. Standing at the corner of Ninth and Walnut Streets in Philadelphia for two hundred years, Walnut Street Theatre's National Historic Landmark structure has housed two centuries' worth of American popular entertainment. Most noteworthy American actors of the 19th century and many from the 20th century have appeared on stage at the Walnut. Some of the Walnut's shining stars include: Edwin Forrest, Edwin Booth, Edmund Kean, the Drews, the Barrymores, George M. Cohan, Will Rogers, The Marx Brothers, Helen Hayes, Henry Fonda, Katharine Hepburn, Marlon Brando, Jessica Tandy, Ethel Waters, Audrey Hepburn, Sidney Poitier, Lauren Bacall, George C. Scott, Jane Fonda, Robert Redford, Julie Harris, Jack Lemon, and William Shatner.

Over the years audiences have clapped and cheered for circus, opera, vaudeville, lectures, music, dance, motion pictures, and of course, the live theatre productions for which it is best known today. When the theatre opened its doors on February 2, 1809, the pounding of hooves mingled with the shrieks of delight from the crowd as teams of horses circled a dirt riding ring. A few years later, an 80-foot dome was added to the theatre, making it the tallest structure in Philadelphia at that time. The theatre's career as an equestrian circus did not last long, however, and by 1812 the building had been converted to a legitimate theatre, featuring a real stage where the ring had stood. The Walnut's first theatrical production, *The Rivals*, had President Thomas Jefferson and the Marquis de Lafayette in attendance on opening night.



*Visit Walnut Street Theatre, a National Historic Landmark, on the corners of 9th and Walnut in Philadelphia*

Walnut Street Theatre is home to many firsts in the American theater scene. In 1837, the Walnut was the first theatre to install gas footlights, and in 1855, the Walnut became the first theatre to install air conditioning. The first copyright law protecting American plays had its roots at the Walnut. The curtain call, now a tradition in every theatre, started at the Walnut with the post-play appearance of noted 19th Century actor Edmund Kean. In 1863, the theatre was purchased by Edwin Booth, a son of one of the most famous theatrical families of the day. Unfortunately, fame would soon turn to notoriety for Booth when his brother John Wilkes Booth assassinated the President at Ford's Theatre in Washington, DC. Edwin Booth, with his business partner and brother-in-law, John Sleeper Clark, managed to hold on to the Walnut in those dark days and go on to guide it for many years.

During the 1880s, the Walnut experienced many renovations, including a new stage for more elaborate musical comedies. In 1920, the interior was again rebuilt within the old exterior using structural steel in a design by William H. Lee. The Walnut remained a significant player on the American theatre scene throughout the twentieth century. Purchased by the Shubert Organization in the 1940s, the theatre was home to many pre-Broadway try-outs of plays that would go on to become American classics, such as *A Streetcar Named Desire* starring Marlon Brando, *A Raisin in the Sun* featuring Sydney Poitier, and *The Diary of Anne Frank* featuring Susan Strasberg. *Mister Roberts*, starring Henry Fonda, opened at the Walnut in 1948. Fonda, recently discharged from the Navy, used his own uniform in the play. His daughter, Jane Fonda appeared in *There Was a Little Girl* in 1960. In 1961, Neil Simon's first Broadway play, *Come Blow Your Horn* debuted.

In 1964, Walnut Street Theatre was designated a National Historic Landmark. Then in 1969 the theatre was renovated again to become a Performing Arts Center. During this period a variety of live entertainments were represented at the Walnut including dance, music, and theatre. In 1976 the Walnut hosted the first televised Carter-Ford presidential debate.

The Walnut began its most recent incarnation as a self-producing, non-profit regional theatre when Bernard Havard took the helm in 1982, founding the Walnut Street Theatre Company with a vision of once again creating theatre in a space that is so steeped in the American theatre's traditions and history. Today, you can experience the realization of that dream when you attend a live performance. With over 56,000 subscribers annually, the Walnut Street Theatre is the most subscribed theatre company in the world.

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by Andrew Davis and *Images of America: Walnut Street Theatre*  
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at [www.walnutstreettheatre.org](http://www.walnutstreettheatre.org)