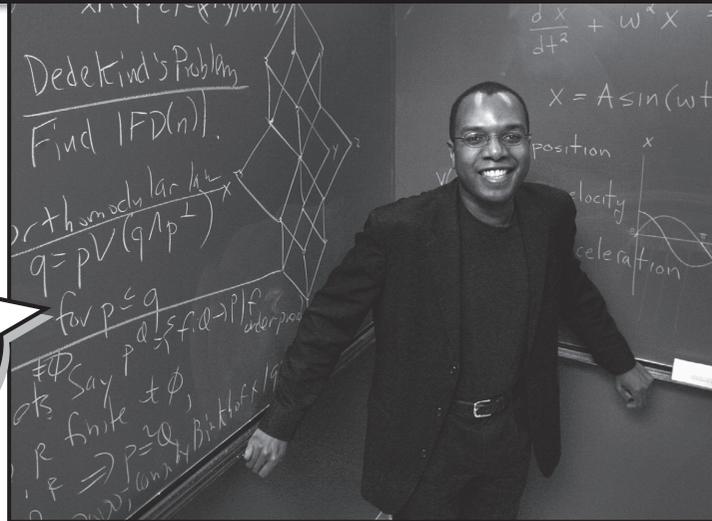


MATHEMATICIAN

JONATHAN FARLEY

Hollywood Math and Science Film Consulting

"I love math. It's not just something I do to get a paycheck. I would do it for free."



Math, Hollywood Style

Jonathan Farley wears many hats as a mathematician. He does research and has taught at universities around the world. He also co-founded a company that helps keep Hollywood scripts honest . . . at least their math! In an episode of the TV show *Medium*, the main character hears the voice of a mathematician talking about complex math. It's an actor's voice, but it's real math. Jonathan gave the lines to writers who wanted to make the character sound like the real deal.

Mysteries and Solutions

Jonathan does cutting-edge research in which he looks for solutions to math problems no one has ever solved. Working in a branch of abstract algebra, he's answered questions that had remained mysteries for decades! But you don't have to be at his level to think about unanswered math questions. For example, a perfect number is one that equals the sum of its proper divisors—those whole numbers that divide evenly into the original number. So 28 is a perfect number because $1 + 2 + 4 + 7 + 14 = 28$. The peculiar thing is that no one knows of a single odd perfect number. "No one knows if there is one or if there isn't one," Jonathan says. "And every mathematician in the world would love to know the answer."

A mathematician . . .

solves problems using numbers, symbols, equations, theories, techniques, and logical reasoning. Jonathan tries to answer unsolved problems and gives math advice to TV and film producers.

Other mathematicians

- use measurements and statistics to study environmental problems such as air and water pollution.
- calculate flight plans for airplanes and spacecraft.
- find ways to secure secret information for companies or for the government.

Movie Math

In 1978, the average price of a movie ticket was \$2.34! By 2008, it was \$7.18. Use your math smarts to predict what a movie ticket will cost in the future.

Year	Price
1978	\$2.34
1988	\$4.11
1998	\$4.69
2008	\$7.18

- What was the average yearly change in the price of a movie ticket between 1978 and 2008?
- Now predict what the average price of a movie ticket might be in 2018.

Compare and discuss your calculations with a classmate.

A Penny Saved Is a Penny Learned

Jonathan uses diagrams to solve problems that have been mysteries for decades. Follow Jonathan's lead and solve this mystery.

The diameter of a penny is 1.9 centimeters. How many pennies would it take to line them up from wall to wall on a school gym floor that is 15 meters wide? How much money does that equal? Once you've figured it out with pennies, try it again with quarters.



The Winning Formulas

Here are some formulas, properties, and constants that mathematicians use. You've probably used them, too. Write down what they are. If you're not sure, look them up. Check your answers with a partner.

1. $A = \frac{1}{2}bh$
2. $V = \frac{1}{3}\pi r^2h$
3. $C = \pi \times d$
4. $a^2 + b^2 = c^2$
5. $a(b + c) = ab + ac$
6. $a + b = b + a$
7. π
8. $^{\circ}F = \frac{9}{5}^{\circ}C + 32$