

## Mathematics in Movies

## This is a collection of movie clips in which Mathematics appears.

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All clips mentioned below are available for viewing along with additional tech. info. To access the flash version (.swf) or watch the quicktime file (.m4v) please go Mathematics Harvard directly to the author's "Mathematics in Movies" web page at: http://www.math.harvard.edu/~knill/mathmovies/. Thank you.


Hackers
Some mathematical formulas in a visualization of a "worm". Features a young Angelina Jolie and a good ol hexeditor which had already been useful to me on the Atari ST to "edit games"
1995

## Intacto

What is the chance to draw an ace in a randomly shuffled card deck of 52. There is one chance in a million for a plane to crash and for it to crash, leaving you the only survivor out of how many -- 237 passengers? One chance in 237 million. Later in this convoluted thriller, a Russian Roulette variant appears, where 5 of 6 chambers contain bullets.
2001


## 12 Monkeys

A wonderful performance of Brad Pit. Here he talks about predicting the future with a probability matrix. As expected with time travel stories, the storyline of 12 Monkeys is intriguing.
1995


The Maltese Falcon
Lots of meta talk and meta-meta talk and twisted logic in this conservation about the black bird. The statement in this conservation about the black bird. The statement
"Mathematically correct" flagged the movie clip for this "Mathematically correct" flagged the movie clip for $t$
collection [I added the last remark to add a meta collection [I added the last rem
statement about this caption]

## 1941

Play the flash version (.swf). or watch the quicktime file (.m4v)

Suspect X (III)
The end of a calculus class by Shigami.
2008


Jane Eyre
Some arithmetic problems on the blackboard, mostly with wrong
solutions.
1996


Network
Arthur Jenson (played by Ned Beatty) talks to Howard Beale (played by Peter Finch) about the only primal force of nature: money: "What do you think What do you think the Russians talk about? Karl Max? They get out their linear programming charts, statistical decision theories,
mini-max solutions mini-max solution
and compute the and compute the prize-cost probabilities of their transactions and investments. Just like we do. "
1976


Amarcord
Solving the quadratic equation. A math scene in this Fellini movie is part of a larger
selection of delightful school
scenes.
1973


Suspect X (IV)

The two friends talk about math, the four color theorem problems. (Thanks to Li Zhou for the suggestion)
2008


Suspect X (II)
A physics class by
Yukawa on
quantum
mechanics
2008


Suspect X (I)
The Gaussian Acceleration device appears early in this Japanese thriller. The entire movie is math/physics heavy since Yukawa is a physisist and Shigami is a
mathematician.
2008

$>$ The Ice Storm
Its when they say $2 * 2$ is equal to 4 , it is not numbers, it is space. It is perfect space. But only in your mind. You can not draw perfect squares in the material world. [While this movie scene is harmless, the movie itself is definitely not PG13.]
1997

## The Bank

The multiplication table and the compound interest formula.
2005


The Wild Blue Yonder
Chaotic transport in the solar system. [ Actual
documentary footage and interviews are combined to a movie. The interview is real and serious but the contex makes it funny.] Thanks to Martin Lo to mention this to me. Lo appeared with two other mathematicians in this movie.
2005


The killer inside me
A brief moment sanity in this dark, dark movie when Lou solves some integrals. It is an extremely disturbing movie because the dark side of Lou Ford, the psychotic killer, is not visible. Why the police men Lou does some math in this scene is unexplained in the movie.
2010

Rites of Love and Math
In this movie of Edward Frenkel mathematical formulas are written onto skin. (Thanks to Andrew Ranicki for the suggestion).
2009

Drowning by Numbers
Counting the stars. Once you counted the hundred, all the other are the same. (Thanks to Andrew Ranicki for the suggestion).


The Dam Busters
On the use of Congruent triangles to measure
distances. Also some applied math problems on
bouncing balls on water and
detonations in water. Thanks to Craig Smorynski for the suggestion. 1955


Flipped
The area of a rhomboid. The movie clip of this beautiful love story starts a bit earlier, in order to explain why Juli Baker is so absent minded in school.
2010


Cranford
On addition of income numbers and a sentence on
teaching
mathematics or
geography. [As all
BBC drama, this miniseries contains delightful acting and is built on a wonderful script quite freely using Elizabeth Glaskells original text. ] 2007


The Wild Blue Yonder
Rotating system. [ Actual documentary footage and
interviews are
movie. The
interview is real, the context makes it funny.]
2005


Deskset
The roof scene of
this charming Tracy/Hepburn movie features some
"mathematical" questions. (Thanks to Shawn Jones for the suggestion.) 1957

Artificial
Intelligence: AI
About the fabric of space time and how humans have tried to find the meaning of life in art, poetry or mathematical formulas.
2001

In July
Theoretical and applied
computation of a free fall problem (Thanks to Andrew Ranicki for the suggestion)
2000



Flatland (short)
The sphere shows the third dimension. This movie was done at the animation workshop at the Carpenter Center for the Visual Arts at Harvard University. A production based on an idea by the American animator John Hubley (1914-1977) and directed by Eric Martin. (Thanks to Jamie Clements for the suggestion). The movie can be obtained here.
1965


## Parenthood

In this commedy with Steve Martin, a kid takes the square root of a large number.
1989


## Fermat's room

This brilliant movie is essentially about math only. A few famous math puzzles appear in this movie, where 4 mathematicians are trapped in a room where the walls slowly crush them. (Thanks to Evan Pellnitz for the suggestion).more.
2007

## Pay it forward

Powers of three in a good pyramid scheme: select 3 people to do good things for and then those 3 each select 3 more people, etc (Thanks to Carolyn Seubert for the suggestion). 2000


## Smilla's Sense of Snow

Smilla reads from Euclids book to Isaiah. (Thanks to Steen Grode for the suggestion)
1997


Smilla's Sense of Snow
Natural numbers, negative integers, fractions. An IMDB review quote: The absolute highlight of the movie is a little speech Smilla gives about numbers. (Thanks to Steen Grode for the suggestion)
1997


## Butterfly Dreaming

On the probability that two raindrops hit the same leaf. (Thanks to Susan Milano for the suggestion and to Robert and Anna Pollack, and the movie director Rufus Williams to make the movie available).
2008


The Pink Panther Strikes Again on a blackboard filled with wrong mathematical computations like $3 \times 3=7$.
1976

Bedazzled (2000)

The devil first assigns Fermats theorem but then cancels all
homework. (Thanks to Tyson Liskow for the suggestion). 2000


Phantom Tollbooth

The dodecahedron asks some riddles
to get to
Digitopolis
Fibonnacci series,
vectors and scalars,
equivalence
relations and
4827659 hairs.
(Thanks to Ron
Fisher for the
suggestion)
1970


For a few dollars more
Counting dead
gangsters. (Thanks
to Damien Brown for the suggestion).
1965

Reality Bites
About the Math in
Astronomy
1994


Merry

## Andrew

In this musical comedy, Danny Kaye as Merry Andrew teaches
Newton's law,
geodesics and
Pythagoras (Thanks to Virginia Usnick for the suggestion) 1958


The Oxford Murders
Lecture on
Wittgensteins pessimistic view on absolute truth followed by rather shallow sound bites: the beauty and harmony of numbers, the golden ratio, Fibonnacci, snowflakes and


October Sky
Free fall differential equations as used in rocketry. 1999


## Run Lola Run

Beside the main theme of "sensitive dependence on initial conditions", there is a "run of Lola" in which she wins in roulette twice betting on the same number 20. The first time, the initial input of 100 mark is multiplied by 35 . The second bet multiplies the now 3600 by 35 leading to a total win of $3500+126^{\prime} 000=129^{\prime} 500$ has an element of Grass's Blechtrommel cry, mathematically related to "resonance". (Thanks to Mark-Willem
Dogterom).
1998

A walk to remember
A tutoring scene with equilateral and isosceles triangles. (Thanks to R. Star Behar for the suggestion) 2002


## Last year in Marienbad

In this rather enigmatic movie, the enigmatic game of NIM with a 7-5-3-1 initial condition is played twice. (Thanks to John Boller for the suggestion.) 1961


The Happening
During one of the "happenings", Julian tries to divert the attention to a math problem
2008


Little Big Man
A lier dilemma
A lier dilemma
leads to the defeat leads to the defeat
of general Coster at of general Coster
the battle of big the battle of big
horn (Thanks to Virginia Usnick for the suggestion). 1970


Its a Mad,mad world
Some division
problems appear in this oscar winning comedy when eight motorists try to figure out how to figure out how to
split the not yet split the not yet
found treasure.
(Thanks to Pete
(Thanks to Pet
Swartz for the
Swartz for th
suggestion)
1963
cancer, the secret meaning of numbers, the
flaps its wings to produce a hurricane which nobody can predict, logic and chance. Thanks to Detlev Beutner for the suggestion. 2008

## Old School

This comedy not only shows shots of only shows shots of
Harvard college but Harvard college bu
also some rather also some rather tough math test
problems: like problems: like
Harriot's method of Harriot's method solving cubics (named afte Thomas
Harriot, you find Harriot's method for finding the three solutions $x=e-b^{2} / e, e, b^{2} / e$ of the equation $x^{3}+3$ $b^{2} x=2 c^{3}$ here). Also Diophantine equations or
integration
problems appear in
this test.
2003


Shrek the Third
Mathematical logic in sentences 2007


Apocalypse
Now
Surrounded by horror, forms of poetry, physics and math appear in a mad form too.
Photojournalist:
"this is dialectics,
simple dialectics. It simple dialectics is very simple
dialectics: 1 dialectics: 1
through 9, no through 9, no
maybes, no maybes, no
supposes, no
supposes, no
fractions. You can't travel to space. You can not go to space with fractions. What do you land on: on







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Fahrenheit 451
Gray suited students recite multiplication tables.

## Links

Here are some references and links to other collections.

- entry [PDF] of Sofia project
- http://world.std.com/~reinhold/mathmovies.html
- http://members.aol.com/vlorbik/tenpage/movies.html
- http://www.pbs.org/teachersource/mathline/concepts/movies.shtm
- http://www.math.tamu.edu/~dallen/hollywood/mathindex.htm
- Math in the movies for middle and high school teachers
- The Countdown resource is a multimedia math education initiative
- Simpsons Math
- Education notes by Edmond Barbeau, Toronto


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