Technology Integration

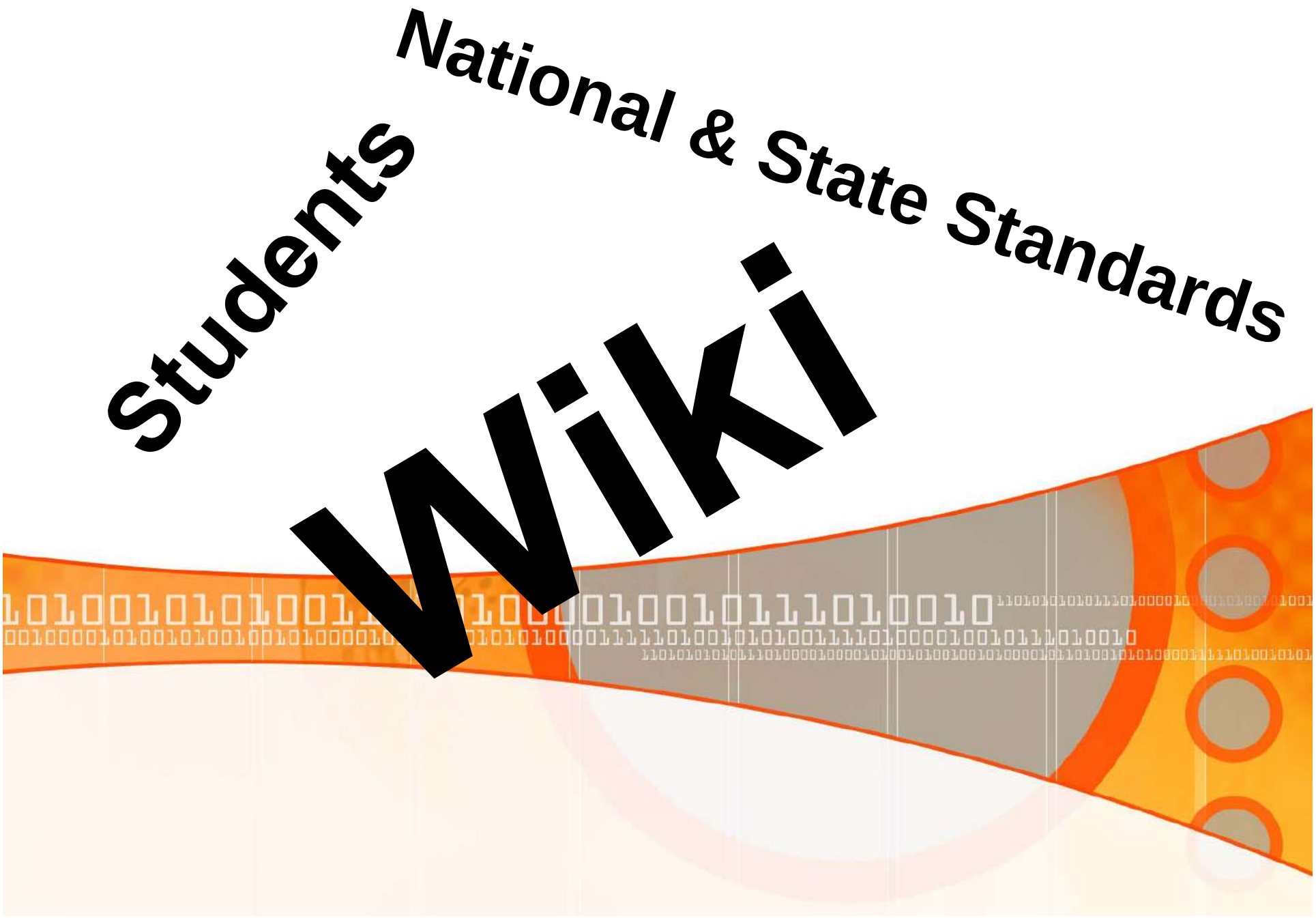
Math

Presented by Jim Dolan

Just to clarify…..

Bad

Good


Students
National & State Standards
Wiki

Presentation Materials

www.mtsd.k12.nj.us/math

Today's students represent the first generations to grow up with this new technology.

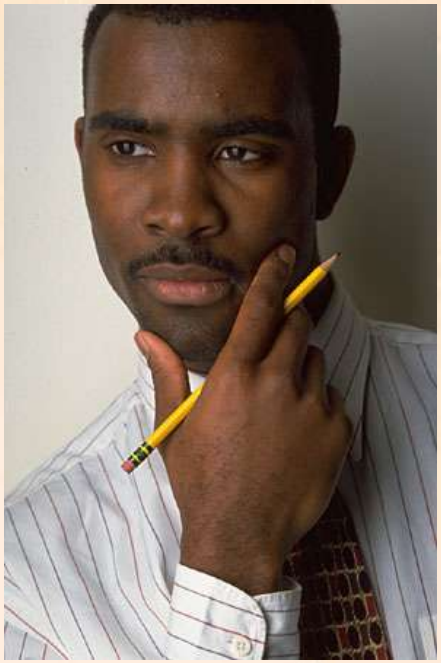
They have spent their entire lives surrounded by and using computers, videogames, digital music players, web cams, cell phones, and all the other toys of the digital age

Today's average college grads have spent less than 5,000 hours of their lives reading

But over 10,000 hours playing video games (not to mention 20,000 hours watching TV).

Computer games, email, the Internet, cell phones and instant messaging are integral parts of their lives.

It is now clear that as a result of this environment, students **think** and **process** information much differently



Web 2.0

Web 2.0 is a term describing changing trends in the use of World Wide Web technology and web design that aims to enhance creativity, information sharing, and, most notably, collaboration among users.

Blogs

Video Sharing

Podcasting

Wikis....

Wikis in Plain English

Wikis

A wiki is software that allows users to collaboratively create, edit, link, and organize the content of a website, usually for reference material.

WIKIPEDIA
The Free Encyclopedia

Wikispaces

Is it reliable?

Wiki vs. Blog

- A Wiki is an online technological tool similar to blogs.
- The main difference between Wikis and blogs is the ability for students to interact with information.
- Blogs tend to be one way communication between the teacher and students.
- Wikis are designed to be collaborative places for students to share and work in cooperative groups.

More About Wikis...

- Wikis are more than a place for writing; they are also ideal for lessons, images, videos, etc.
- This technological tool allows teachers and students or students and students to collaborate in a dynamic process.
- Teachers can even collaborate with other teachers in thematic units, multiple class math projects, research and work on curriculum.

More About Wikis...

- Students can complete projects and assignments in groups or individually.
- By working in groups they contribute and edit from their homes or other places they have access to their Wiki
- Individual assignments or projects can be added to any Wiki space.

Strategies for Wikis in Math Class

Applications are only limited by the creativeness of the teacher and students to support learning.

- ***Problem Solving*** *– students can write about and provide images of where they applied math to solve a problem.*
  - *Students describe how they used geometry to determine how two objects were parallel to each other.*
  - *Their description provides written steps and images of the objects.*

Real World Math

- Students provide examples of how they solved everyday math problems
- Students provide a description of how they mathematically determine the speed and angle of an incline necessary to jump a skateboard a specific distance.
- They provide written steps and include a video or images.

Problems of the Week

- *Students work in groups to solve challenging word problems*
  - ***Example:*** *groups of students work together to solve difficult calculus problem.*
    - *They provide the written steps and procedure used to solve the problem.*
    - *Afterwards other class groups have access to all solutions for comparison*

Glossary of Mathematical Terms

- Students collaborate in defining math terms using images, links to detailed explanations, and online videos on Teacher Tube.
  - **Example:** students develop an interactive glossary of geometric theorems throughout the entire school year.
    - They provide written theorems, along with videos and images of appropriate examples.

Collaborate with Other Schools

- Teachers and students can develop working relationships with other schools around the country or world to challenge each other in math problems or applications of math.

Wiki ideas for math

- **A calculus** *wiki for those wicked-long problems so the class can collaborate on how to solve them (a "wicked wiki"?)*
- **A geometry** *wiki for students to share and rewrite proofs (a geometwiki?). What a great way to see the different approaches to the same problem!*
- **Applied math** *wiki: students write about and illustrate places where they actually used math to solve a problem.*
- **Procedures** *wiki: groups explain the steps to a mathematical procedure, such as factoring a polynomial or converting a decimal to a fraction.*
- **Pure numbers** *wiki: student illustrate numbers in as many ways possible: as graphics to count, as mathematical expressions, etc.*

Wikis Have Controlled Access for Safety

Security of information and safety for students is not an issue, because teachers can limit access or allow open access to specific parts, for example:

- ***Viewing*** *– teachers can open their Wiki to the public or limit to members only.*
- ***Membership*** *– teachers decide who can join; students, parents, invited guests, or the public.*
- ***Protection*** *– because of the collaborative nature of Wikis, teachers can lock specific sections so other members cannot modify.*
- ***Moderation*** *– teachers can moderate all aspects of their Wiki for appropriateness.*
- ***Notification*** *– teachers can set up instant notification when a member makes a post or changes any aspect of the Wiki.*

Wikispaces Getting started

Wiki Examples

http://mathdemo.wikispaces.com/

http://en.wikiversity.org/wiki/Portal:Mathematics

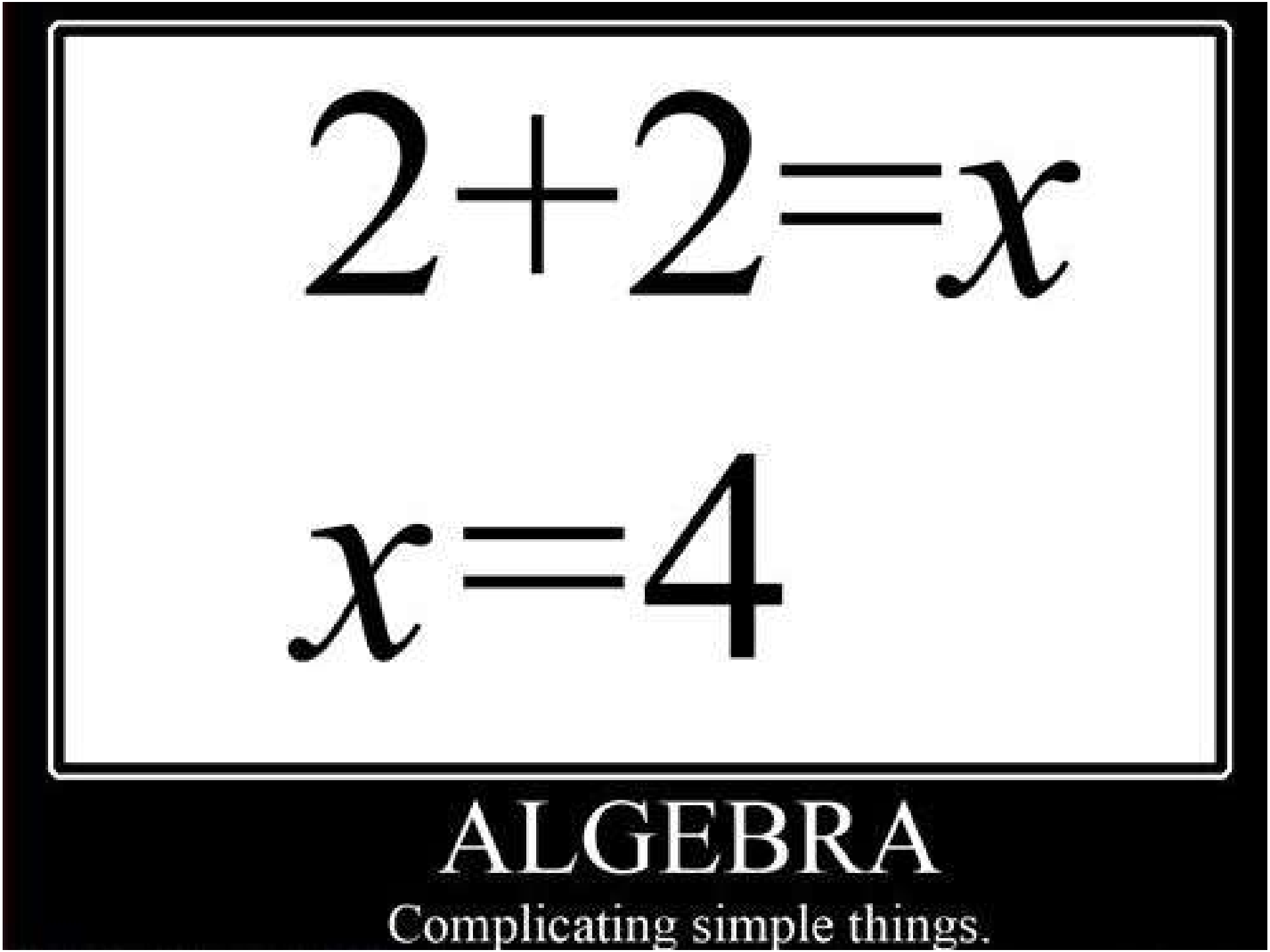
http://acrospire.pbworks.com/

http://cappello.pbworks.com/Homework%3A-Math-MFM1PL

http://whites-geometry-wiki.wikispaces.com/

http://teamkaj.wikispaces.com/

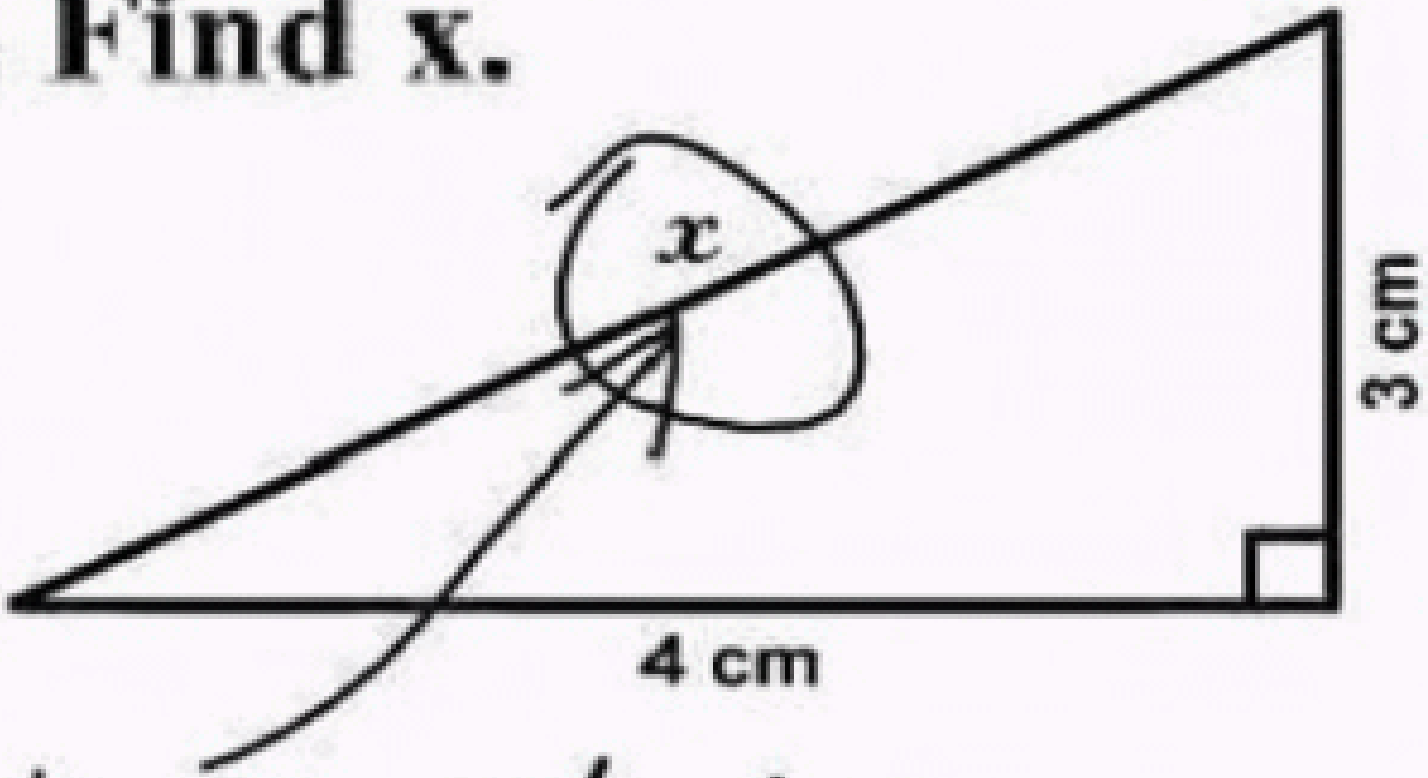
http://en.wikibooks.org/wiki/Talk:High_School_Mathematics_Extensions/Mathematical_Proofs


2+2=x
x=4
ALGEBRA
Complicating simple things.

MATH

It can be so very, very tasty.

3. Find x.



Here it is

SIMPLICITY

The simplest solutions are often the cleverest
They are also usually wrong

Wrap-up

- *Students synthesize information for others to view and share, as they work collaboratively.*
- *They have ownership in their own learning, moderated by their teacher, and are presented with challenges for all student levels.*

Wordle

Wordle

- Wordle is a tool for generating “word clouds” from text that you provide.
- The clouds give greater prominence to words that appear more frequently in the source text.
- You can tweak your clouds with different fonts, layouts, and color schemes.
- The images you create with Wordle are yours to use however you like.
- You can print them out, or save them to the Wordle gallery to share with your friends.

http://www.wordle.net/


literacy
collaboration
MATH
numbers
skills
communication
solving
thinking
intellectual
creativity
21st Century students
solutions
critical
curiosity
formulation
media
information
solution
problem
systems
identification


web2.0
Twitter
wikis
Pageflakes
GoogleDocs
PBwiki
iGoogle
podcasts
Glogster
GoAnimate
animoto
wordle
blogs
TeacherTube
delicious
Picassa
Flickr
SchoolTube
slideshare
Symbaloo
voicethread
PollDaddy
GoogleReader

Smartboard- Recording

Page Recording

- *Records anything written on a single page*
- *Does not include sound/voice*
- *Does not include flash elements*

- **Smart Recording**
  - *Saves everything you do as part of your lesson*
  - *It includes audio*
  - *The saved video file can then be shared-uploaded to the web or wiki*

SURVIVAL

When you are in deep trouble,
say nothing, and try to look like
you know what you're doing.

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Presentation materials available at:

www.mtsd.k12.nj.us/math