CSI: ALGEBRA

21st Century Math Projects

UNIT 1

Solving Equations

Names:

1...

2...

3...

Project Title : *CSI Algebra: Solving Equations*

Standard Focus: Patterns Algebra and Functions

Topics of Focus :

- Translating Equations

- Solving Equations

- Using Formulas

Procedures:

A.) You will be given a letter from Chief Al-Razi, the possible suspects, and crime scene puzzles.

B.) You will work in groups to solve the crime.

C.) You will determine which suspect should be arrested.

E.) you will present your evidence to the class as an oral presentation.

Instructions for students

➢ *Solve all the scenes. Show your work in page 4 and 5.*

➢ *Evaluate the CRYPTIC TEXT MESSAGE to solve the crime.*

➢ *Make PowerPoint presentation or a short movie to create a portfolio of evidence proving that you have arrested the right person using the mathematical content present in the problems.*

➢ *Print out, complete and submit 1 copy per group to your math teacher.*

➢ *The project has to be submitted by the 13ʰ of November 2014. If not adhered to the deadline, marks will be deducted accordingly.*

CSI Algebra: Solving Equations

Detectives,

Once again there is a robbery made by the evil genius group, the Mathemagicians. Notes signed "Kareem Al-Jabr" have been discovered at each of the robbery sites. Once again a cryptic text message was sent, but requires the puzzles to be cracked.

Again we've been told the result of the cryptic text message will calculate to Al-Jabr's favorite number. Thus far there are six suspects that police have questioned. It is hoped that someone with a relatively strong number sense can crack some codes that have puzzled the detectives on the case so far.

Your job is to bring Al-Jabr to justice and save the planet. You need to be prepared to state your case and demonstrate your understanding of the following skills that Al-Jabr is known to use in the notes.

- Translating equations

- Solving equations

- Using Formulas

Be sure to include:

- Other examples of the concepts

- Definitions

- Any other relevant information.

This is not a time to be sloppy. The slightest miscalculation or illegible footnote could result in a not guilty verdict.

Chief Al-Razi

CSI: THE EVIDENCE

1.

CLUE

_____

2.

CLUE

_____

3

CLUE

_____

4.

CLUE

_____

5.

CLUE
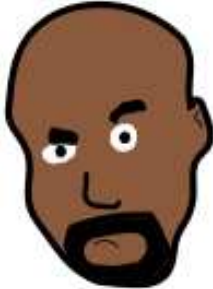
_____

6.

CLUE

_____

CRYPTIC TEXT MESSAGE

SUSPECT

_____

Who is Kareem Al-Jabr?

Name: Bao

Occupation:
insurance Agent

Favorite Number: -201

Name: Trish

Occupation:
Lawyer

Favorite Number: 0

Name: Chloe

Occupation: High
School Teacher

Favorite Number: 97

Name: Eugene

Occupation:
Musician

Favorite Number: ¼

Name: Darryl

Occupation:
Optometrist

Favorite Number: 9

Name: Carlo

Occupation:
Grocer

Favorite Number: -20

In the middle of the night, Kareem Al-Jabr softly repelled into the heavily alarmed security system. Al-Jabr most definitely has soft feet and great swag. He left with hundreds of coins from the ancient world.
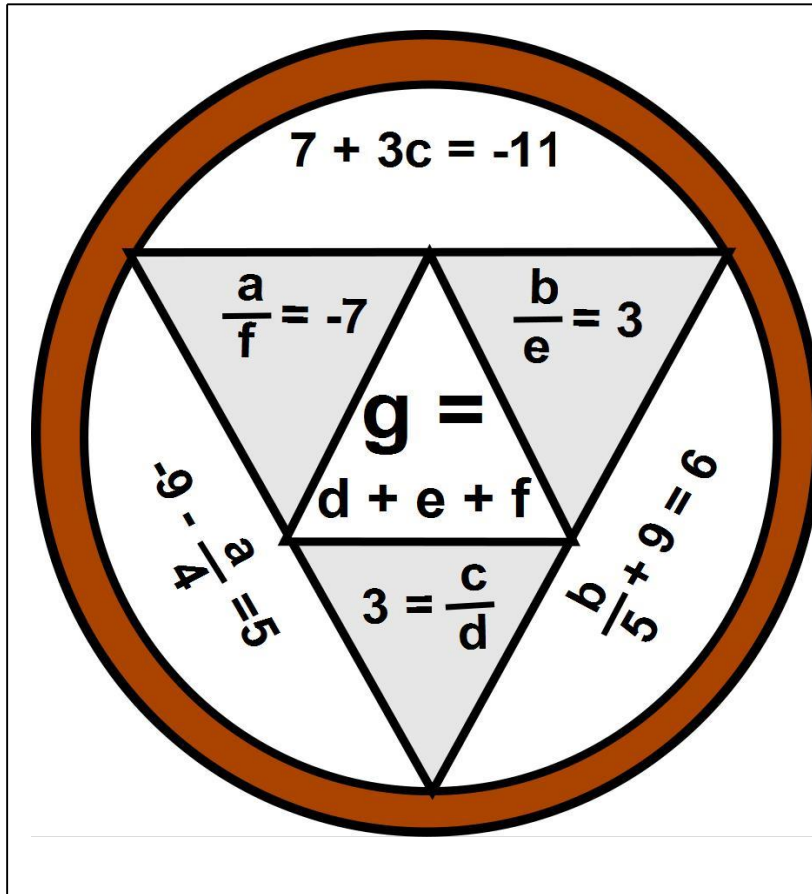
These coins look really really old.

I'll be sellin these on eBay check out my listings @WorldlySwagg14. I'm about to knock over the home of Algebra! Come enjoy the ride with me?

$$7 + 3c = -11$$

$$\frac{a}{f} = -7$$

$$\frac{b}{e} = 3$$

$$g = d + e + f$$

$$-9 - \frac{a}{4} = 5$$

$$3 = \frac{c}{d}$$

$$\frac{b}{5} + 9 = 6$$

g=_____

Scene #2 National Museum of Iraq – Baghdad, Iraq

A baked clay tablet with Hammaurabi's Code was found astray this morning. It appears Kareem Al-Jabr was attempting to translate the document.

While my Akkadian is a little rusty, my swagg tells me rule 204 says,

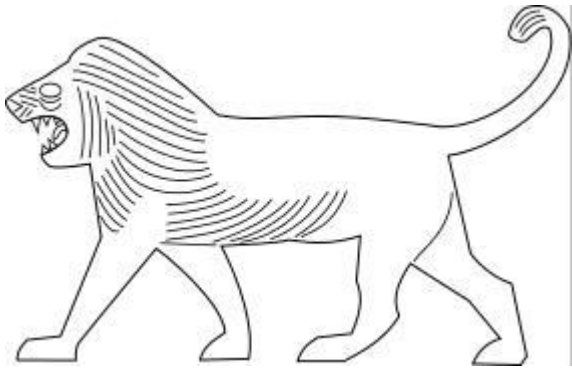"what you do to one side you better do to the other side. Otherwise your hand will be cut off."

i. $3k - 5 = 7k - 33$	ii. $28 - 2.2x = 11.6x - 54.8$	iii. $8f + 12 = 7f + 9$
iv. $k + Vf = x + V$	$V = \underline{\quad}$	

Etched into the grounds of Babylon, Kareem Al-Jabr left the this note. It's suspected he used Babylonian numerals.

I was going to etch this a few spots over, but it seems the US military built a helipad in Babylon. Good thing it's not an ancient civilization that should be cherished forever. Well at least they didn't crush the ground with their tanks. Oh wait, are those tank tracks?

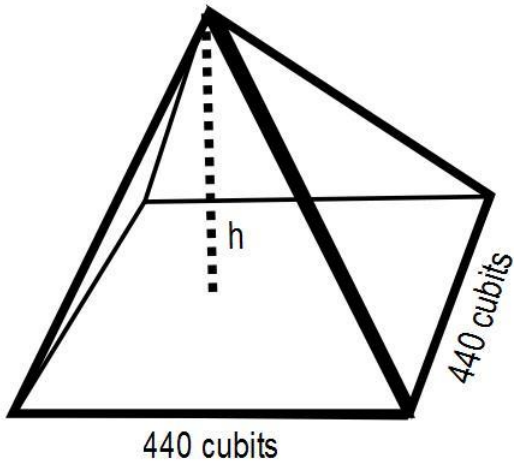See if you can solve this puzzle from the ruins.

$$3(x + 2) = 2(x - 32)$$

$$x = \underline{\qquad}$$

Kareem Al-Jabr snuck past Pyramid Security at an unspecified time. While we are unsure what he stole, we are in the process of taking inventory of all the mummies.

Hmmm…so sure the algebra stuff isn't that hard, let see if you can handle some swagg-rific geometry.

The volume of the pyramid is 18,069,333.33333 cubits^3

How tall is it? I'll be a nice person. Here's the formula for the volume of a pyramid: V = (1/3)lwh

(Round your answer to the nearest whole number)

h (on diagram)

440 cubits

440 cubits

h=_____

Scene #5   Sphinx -- Giza, Egypt

We suspect after his robbery at the pyramid, Al-Jabr went outside, ate a picnic lunch, and climbed the Sphinx. Our research team suspects, Al-Jabr stole a limestone fragment of the Sphinx's beard.

I so stole a piece of that dude's beard. Check this out, here's some good ol' Egyptian math right off the Rhind Papyrus! I stole that too!

Problem 44.

THE SUM OF A CERTAIN QUANTITY "P" TOGETHER WITH ITS TWO-THIRD, AND ITS HALF BECOMES 234.

WHAT IS THE QUANTITY "P"?

p=_____

After the pair of robberies at Giza, Al-Jabr hopped on a Nile River cruise. He stole a dangerous amount of shampoo.

Livin it up on the Nile. Gotta go get my swaggilicious self on the dance floor. Check out these two receipts – I had to pay with Egyptian Pounds after my Swaggcard got denied.

What a coincidence? Both receipts totaled to the same amount… X. I really wish I knew how much a Du'aah cost. They were yummy.

NILE RIVER CRUI$ | NILE RIVER CRUISES

Lamb Kabab	£ 120
Du'aah	£ α
Mahshi	£ 60
Diet Dr. Pepper	£ 15
Skittles	£ 20
Total	X

Kebda	£ 130
Torly	£ 35
Du'aah	£ 2α
Water	£ 0
Total	X

$$œ = \underline{\qquad}$$

check dis out. You dont got no chance.

$$(h - p) \div (9g + \text{🪶}) + œ - (pv)^g$$

Kareem Master of Swagg Al-Jabr

	Criteria				Points
	4	**3**	**2**	**1**	
Completeness of Tasks **20%**	Tasks are totally completed and correct. (100%)	Tasks are partially completed, **OR** Partially wrong.(75%)	Tasks are partially completed, **AND** Partially wrong (50%).	Tasks are Attempted (25% or less)	____
Presentation and Integration of Technology **70%**	Students used one mean of technology. The tool used helped the student and was useful to support his project. Moreover, the student was able to explain the work he/she submitted confidently and fluently; he/she was **able to answer all** of colleagues and instructor's questions	Student used a mean of technology but it was not that supportive to the topic. In addition, student was able to explain the work he/she submitted confidently and fluently and he/she reflected an understanding of his/her works. The student was **able to answer most** of colleagues and instructor's questions.	Student was able to explain the work he/she submitted. Student reflected a shallow understanding of his/her work; she was **able to answer some** of colleagues and instructor's questions,	Student use of technology was primitive and way below the level of other IAT students. Student was unable to explain the work he/she submitted. Student reflected no understanding of his/her work; he/she was **unable to answer any** of colleagues and instructor's questions.	____
Creativity& enrichment **10%**	Student had an outstanding addition in **all aspects** of his/her project.	Student had an outstanding addition in **some aspects** of his/her project.	Student had an outstanding addition in **very few aspects** of his/her project.	Student had an outstanding addition in **no aspects** of his/her project.	____
This rubric is out of 100, percentage orientation. To make the mark out of 20 (Student's Mark/10*2)				Total---->	____