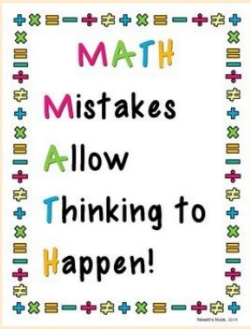
Welcome Back MYP Math 9

Self-assess:

	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
Monday Date: 10-2 Topic: Systems Quiz Friday	0 1 2	**I began reviewing my notes for the upcoming unit test.**
Tuesday Date: _____ Topic: _____	0 1 2	
Wednesday Date: _____ Topic: _____	0 1 2	
Thursday Date: _____ Topic: _____	0 1 2	
Friday Date: _____ Topic: _____	0 1 2	

Class Plan



1. Mathematician Mondays!
2. Return Systems Quiz

How can we learn from mistakes?

3. Unit Test Review - 1 (Systems)

Unit Test: Friday 10 - 6

Mathematician Mondays!

Srinivasa Ramanujan

22 December 1887 – 26 April 1920) was an Indian mathematician who lived during the British Rule in India. Though he had almost no formal training in pure mathematics, he made substantial contributions to mathematical analysis, number theory, infinite series, and continued fractions, including solutions to mathematical problems considered to be unsolvable.

Ramanujan initially developed his own mathematical research in isolation; it was quickly recognized by Indian mathematicians.

Seeking mathematicians who could better understand his work, in 1913 he began a postal partnership with the English mathematician G. H. Hardy at the University of Cambridge, England. Recognizing the extraordinary work sent to him as samples, Hardy arranged travel for Ramanujan to Cambridge. In his notes, Ramanujan had produced new ground breaking theorems, including some that Hardy stated had 'defeated [him and his colleagues] completely', in addition to rediscovering recently proven but highly advanced results.

Mathematician Mondays!

Srinivasa Ramanujan

During his short life, Ramanujan independently compiled nearly 3,900 results (mostly identities and equations).[2] Many were completely novel; his original and highly unconventional results, such as the Ramanujan prime, the Ramanujan theta function, partition formulae, and mock theta functions, have opened entire new areas of work and inspired a vast amount of further research.[3] Nearly all his claims have now been proven correct.[4] The Ramanujan Journal, a peer-reviewed scientific journal, was established to publish work in all areas of mathematics influenced by Ramanujan,[5] and his notebooks - containing summaries of his published and unpublished results - have been analyzed and studied for decades since his death as a source of new mathematical ideas.

Actor Dev Patel in: "The Man Who Knew Infinity"

Mathematician Mondays!

Srinivasa Ramanujan

Actor Dev Patel in: "The Man Who Knew Infinity"

As late as 2011 and again in 2012, researchers continued to discover that mere comments in his writings about "simple properties" and "similar outputs" for certain findings were themselves profound and subtle number theory results that remained unsuspected until nearly a century after his death and which relied on work published in 2006.[6][7] He became one of the youngest Fellows of the Royal Society and only the second Indian member, and the first Indian to be elected a Fellow of Trinity College, Cambridge. Of his original letters, Hardy stated that a 'single look' was enough to show they could only have been written by a mathematician of the highest calibre, comparing Ramanujan to other mathematical geniuses such as Euler and Jacobi.

Mathematician Mondays!

Srinivasa Ramanujan

Hardy-Ramanujan "taxicab numbers"

(A problem created by Srinivasa Ramanujan and Cambrige Mathematician G. H. Hardy

The smallest natural number can be represented in two different ways as a sum of two cubes:

$$1729 = 1^3 + 12^3$$
$$= 9^3 + 10^3$$

It is also incidentally the product of three prime numbers

Actor Dev Patel in: "The Man Who Knew Infinity"

Mathematician Mondays!

Srinivasa Ramanujan

Ramanujan's Partition Formula

$$p(n) = \frac{1}{2\pi\sqrt{2}} \sum_{k=1}^{v} A_k(n)\sqrt{k} \cdot \frac{d}{dn}\left(\frac{1}{\sqrt{n-\frac{1}{24}}} \exp\left[\frac{\pi}{k}\sqrt{\frac{2}{3}\left(n-\frac{1}{24}\right)}\right]\right)$$

where

$$A_k(n) = \sum_{0 \le m < k,\ (m,k)=1} e^{\pi i(s(m,k)-2nm/k)}$$

Actor Dev Patel in: "The Man Who Knew Infinity"

Mathematician Mondays!

Srinivasa Ramanujan

Actor Dev Patel in: "The Man Who Knew Infinity"

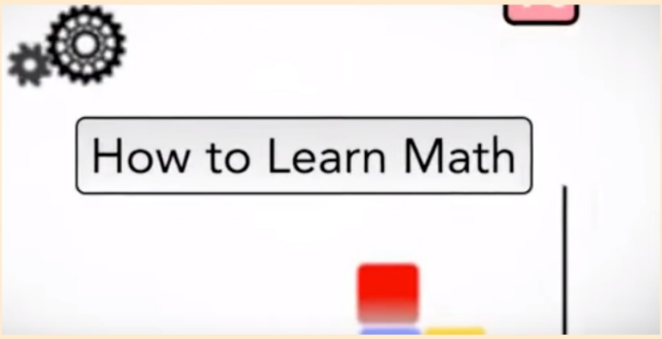
In 1919, ill health – now believed to have been hepatic amoebiasis (a complication from episodes of dysentery many years previously) – compelled Ramanujan's return to India, where he died in 1920 at the age of 32. His last letters to Hardy, written January 1920, show that he was still continuing to produce new mathematical ideas and theorems. His "lost notebook", containing discoveries from the last year of his life, caused great excitement among mathematicians when it was rediscovered in 1976.

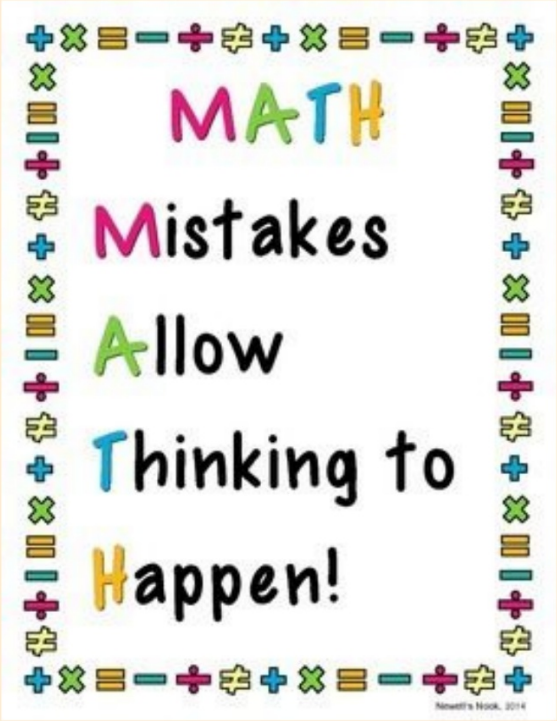
A deeply religious Hindu,[8] Ramanujan credited his substantial mathematical capacities to divinity, and stated that the mathematical knowledge he displayed was revealed to him by his family goddess. "'An equation for me has no meaning," he once said, "unless it expresses a thought of God."'[9]

Systems of Equations Quiz

How can we learn from mistakes?

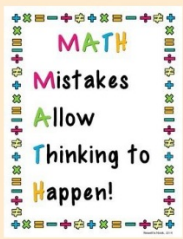
Video Break





https://www.youtube.com/watch?v=exmCR28kmZk

Systems of Equations Quiz



How can we learn from mistakes?

Common Mistakes

1) **Special cases**: What does a solution look like on a graph?

2) **Solving:** Elimination needs all 3 terms to be multiplied (**Just like entire rows of matrices**)

-Matrix rules missing or no "destination"

-Variables not defined, "**cost**" or **$** missing.

3) **Create a system:**

-not verified, or not verified algebraically

x=7 and ***y=-5*** are valid, but challenge yourself!

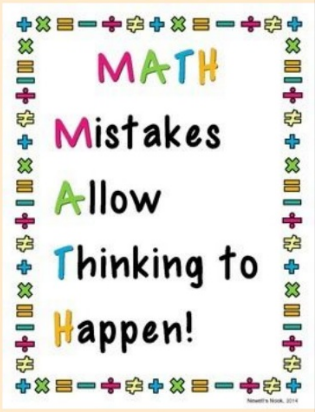
Systems of Equations Quiz

How can we learn from mistakes?

1) Look over rubric and quiz to learn from mistakes.

2) Examine exemplars/key to quiz.

3) Make corrections .

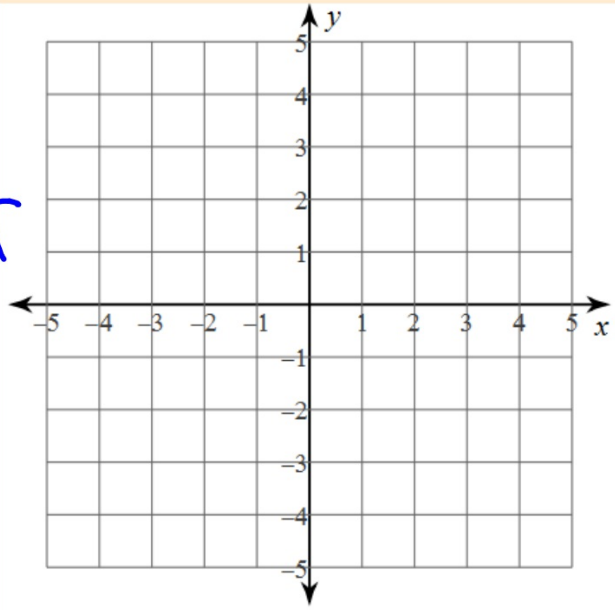


Unit Test Review

Solve each special case by graphing.

1) $0 = -3x - 4 - y$
$-12 - 3y = 9x$

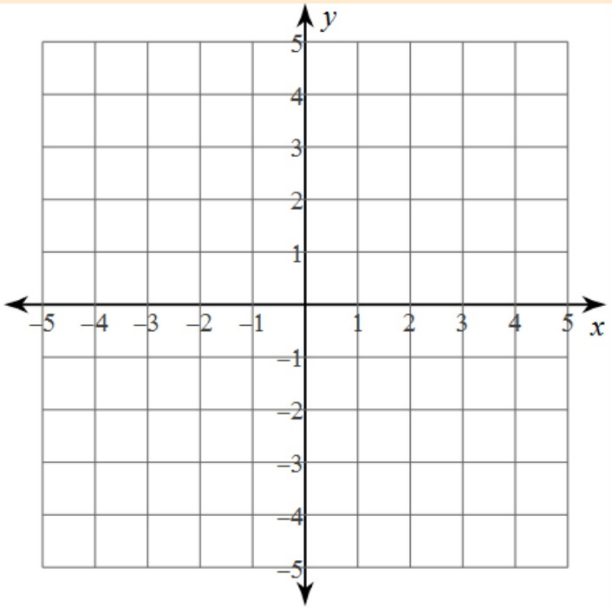
Write in intercept Form: $Y = mx + b$



Unit Test Review

Solve each special case by graphing.

2) $0 = -2x - y - 4$
$2 = -2x - y$



Unit Test Review

Solve each system by a method of your choice. Try using more than one method to verify solution!

3) $y = -6$
$y = 2x + 8$

Unit Test Review

Solve each system by a method of your choice. Try using more than one method to verify solution!

4) $y = -8x + 18$
$y = -6x + 14$

Unit Test Review

Solve each system by a method of your choice. Try using more than one method to verify solution!

5) $-7x - 4y = 14$
$y = 2x + 4$

Unit Test Review

Solve each system by a method of your choice. Try using more than one method to verify solution!

6) $5x + 3y = -5$
$-5x + 4y = -30$

Unit Test Review

Solve each system by a method of your choice. Try using more than one method to verify solution!

7) $10x - 5y = 30$
$5x + y = 29$

Unit Test Review

Solve each system by a method of your choice. Try using more than one method to verify solution!

8) $-5x + 6y = -8$
$6x - 4y = 0$

Unit Test Review

Solve each system by a method of your choice. Try using more than one method to verify solution!

9) $-4x - 2y = -4$
$7x + 3y = 12$

Unit Test Review

Solve each system by a method of your choice. Try using more than one method to verify solution!

10) $-3a - 6b + 2c = 28$
$15a - 4b + 2c = 18$
$-6a - b - 2c = 7$

E1+E3
E2+E3

$-9a - 7b = 35$
$9a - 5b = 25$
$-12b = 60$

Unit Test Review **SOLUTIONS :**

1) Infinite number of solutions 2) No solution 3) $(-7, -6)$
4) $(2, 2)$ 5) $(-2, 0)$ 6) $(2, -5)$ 7) $(5, 4)$
8) $(-2, -3)$ 9) $(6, -10)$ 10) $(0, -5, -1)$

Exercises: Continue reviewing for your Unit Test Friday 10 - 6

Afterschool
W125 | W101