

### Inside this Edition

22<sup>nd</sup> Annual Math Contest – Page 4  
 Profile of New Mathematics Faculty – Page 6  
 The Fibonacci Wins Points System – Page 8  
 AMATYC Updates from Jane Tanner– Page 11  
 Steve Krevisky's Newton at the Bat Poem – Page 13

---

Mathematical Association of Two-Year  
 Colleges of Connecticut

---

**2012 – 2013**

**OFFICERS AND  
EXECUTIVE  
COMMITTEE**

**Teresa Foley, President**  
Asnuntuck Community College  
(860) 253-3137  
[TFoley@acc.commnet.edu](mailto:TFoley@acc.commnet.edu)

**Rachael Shettenhelm, Vice President**  
Gateway Community College  
(203) 285-2191  
[RSchettenhelm@gwcc.commnet.edu](mailto:RSchettenhelm@gwcc.commnet.edu)

**Ruth Urbina-Lilback, Secretary**  
Naugatuck Valley Community College  
(203) 575-8129  
[RUrbina-lilback@nvcc.commnet.edu](mailto:RUrbina-lilback@nvcc.commnet.edu)

**Kegan Samuel, Treasurer**  
Naugatuck Valley Community College  
(203) 575-8232  
[KSamuel@nvcc.commnet.edu](mailto:KSamuel@nvcc.commnet.edu)

**Jana Sime, Membership Chair**  
Manchester Community College  
(860) 512-2732  
[JSime@mcc.commnet.edu](mailto:JSime@mcc.commnet.edu)

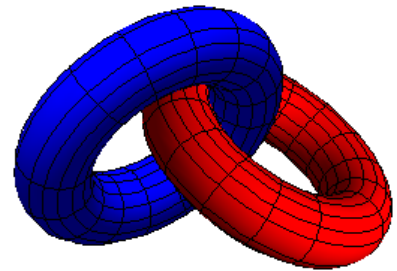
**Andre Freeman, Newsletter Editor & Interim  
Past President**  
Capital Community College  
(860) 906-5177  
[AFreeman@ccc.commnet.edu](mailto:AFreeman@ccc.commnet.edu)

**Steve Krevisky, Math Contest Coordinator**  
Middlesex Community College  
(860) 343-5792  
[SKrevisky@mxcc.commnet.edu](mailto:SKrevisky@mxcc.commnet.edu)

**Sandra Pettinico, Math Contest Coordinator**  
Naugatuck Valley Community College  
(203) 596-2161  
[SPettinico@nvcc.commnet.edu](mailto:SPettinico@nvcc.commnet.edu)

**Larisa Alikhanova, Scholarship Chair**  
Three Rivers Community College  
(860) 885-2375  
[LAlikhanova@trcc.commnet.edu](mailto:LAlikhanova@trcc.commnet.edu)

**Elaine Dinto, Webmaster**  
Naugatuck Valley Community College  
(203) 596-2152  
[EDinto@nvcc.commnet.edu](mailto:EDinto@nvcc.commnet.edu)



**2012 – 2013**

**CAMPUS CONTACTS**

**Asnuntuck**

Teresa Foley (860) 253-3137  
[TFoley@acc.commnet.edu](mailto:TFoley@acc.commnet.edu)

**Capital**

Andre Freeman (860) 906-5177  
[AFreeman@ccc.commnet.edu](mailto:AFreeman@ccc.commnet.edu)

**Gateway**

Rachael Schettenhelm (203)285-2191  
[RSchettenhelm@gwcc.commnet.edu](mailto:RSchettenhelm@gwcc.commnet.edu)

**Housatonic**

Mark Leach (203) 332-5230  
[MLEach@hcc.commnet.edu](mailto:MLEach@hcc.commnet.edu)

**Manchester**

Jana Sime (860) 512-2732  
[JSime@mcc.commnet.edu](mailto:JSime@mcc.commnet.edu)

**Middlesex**

Pamela Frost (860) 343-5793  
[PFrost@mxcc.commnet.edu](mailto:PFrost@mxcc.commnet.edu)

**Naugatuck Valley**

Harry Burt (203) 596-2147  
[HBurt@nvcc.commnet.edu](mailto:HBurt@nvcc.commnet.edu)

**Northwestern**

Karen Collin (860) 738-6336  
[KCollin@nwcc.commnet.edu](mailto:KCollin@nwcc.commnet.edu)

**Norwalk**

Eli Glatt (203) 857-7292  
[EGlatt@ncc.commnet.edu](mailto:EGlatt@ncc.commnet.edu)

**Quinebaug Valley**

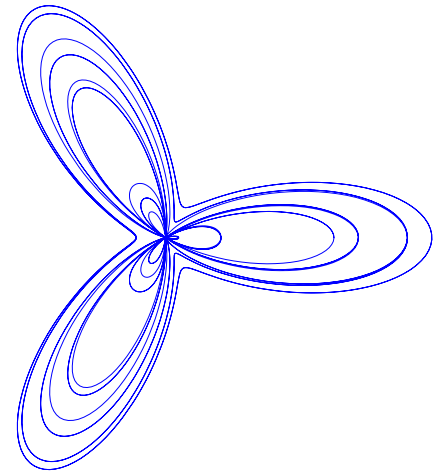
John Lepore (860) 432-1824  
[JLepore@qvc.comnet.edu](mailto:JLepore@qvc.comnet.edu)

**Three Rivers**

Larisa Alikhanova (860) 885-2375  
[LAlikhanova@trcc.comnet.edu](mailto:LAlikhanova@trcc.comnet.edu)

**Tunxis**

Susan Ricciuti (860) 255-3707  
[SRicciuti@txcc.comnet.edu](mailto:SRicciuti@txcc.comnet.edu)



**22<sup>nd</sup> ANNUAL MATH CONTEST**

The 22<sup>nd</sup> Annual Math Contest took place between Wednesday, April 13, 2012 and Saturday, April 16, 2012 at several Connecticut Community Colleges. The winners are:

**First Place:** Mark Erwin (Asnuntuck), Hyden Zhang (Gateway), and  
Jacob Dooling (Naugatuck Valley) – 40 points

**Second Place:** Edie Yang (Three Rivers) - 39 points

**Third Place:** Thomas Fournier (Three Rivers) – 38 points

<u>Questions:</u>	<u>Answers:</u>
<p><b>Each of the following problems, 1 through 6, is worth one (1) point.</b></p> <ol style="list-style-type: none"> <li>The sum of two prime numbers is the prime number 61. Find the smaller of the two prime numbers.</li> <li>A puppy weighs <math>\frac{3}{4}</math> of its weight, plus <math>\frac{3}{4}</math> pounds. How many pounds does the puppy weigh?</li> <li>How many integers satisfy the inequality  <math display="block">\frac{1}{3} &lt; \frac{n}{12} &lt; \frac{4}{5} ?</math> </li> <li>If the ratio of <math>x + 2y</math> to <math>5y - x</math> is 3 to 5, then what is the ratio of <math>x</math> to <math>y</math>?</li> <li>Tom bought a \$30 jacket at a 20 percent discount, and a \$20 shirt at a 30 percent discount. What is the single percentage discount that he received on his total purchase?</li> <li>Two consecutive even integers are each squared. The difference between these squares is 60. What is the sum of the original two numbers?</li> </ol> <p><b>Each of the following problems, 7 through 14, is worth two (2) points.</b></p> <ol style="list-style-type: none"> <li>Curtis Granderson hit 4 less than twice as many home runs as Jacoby Ellsbury. Ellsbury also hit 21 fewer home runs than Granderson. How many home runs did Granderson hit?</li> <li>Given <math>a + b + c + d = 45, a + 2 = b - 2 = 2c = \frac{d}{2}</math>. Find the value of <math>a + b + c - d</math>.</li> </ol>	<ol style="list-style-type: none"> <li>2 = SMALLEST PRIME</li> <li>3 POUNDS</li> <li>5 INTEGERS</li> <li>5/8 OR 5:8</li> <li>24 %</li> <li>SUM = 30</li> <li>46 HOMERS FOR GRANDERSON</li> <li>A + B + C - D = 5</li> </ol>

9.  $P$  pennies are lying on a table;  $\frac{1}{5}$  of them show heads. If Penelope turns over 3 of the pennies showing tails, then  $\frac{1}{4}$  of the pennies will show heads. How many pennies are lying on the table?
10. In a group of 50 girls, each girl is either blonde or brunette, and each girl has either blue or brown eyes. Find the number of brown-eyed blondes, if 14 girls are blue-eyed blondes, 31 are brunettes, and 18 have brown eyes.
11. Find the sum of three positive integers, whose product is 144, if the sum of their squares is 149.
12. The diagonals of a rhombus are 18 feet and 20 feet. What is the perimeter of the rhombus?
13. Fary paces off 30 yards east, followed by 10 yards north, then 10 yards east, and then 20 yards north. What is the linear distance from her starting point to her ending point?
14. A stock loses 10 % of its value on Monday. On Tuesday, it loses 20 % of the value that it had at the end of the day on Monday. What is the overall percent loss in value from the beginning of Monday to the end of Tuesday?

**Each of the following problems, 15 through 20, is worth three (3) points.**

15. The product of 3 consecutive odd integers, reduced by 23, is 99 less than the cube of the sum of the smallest number and 2. Compute the mean (average) of the three integers.
16. Find the area of the region bounded by the lines  $y = \frac{x}{2}$ ,  $y = 2x$ , and  $y = 2$ .
17. Suppose that  $y = f(x) = mx + b$  is a linear function with a positive slope. If  $f(f(x)) = 25x + 9$ , then find the  $y$ -intercept of the function, as an ordered pair.
18. The quadratic equation  $2ax^2 - 4ax + a + 1 = 0$  has 2 rational roots. If one root is three times the second root, then what is the value of  $a$ ?

9. 60 PENNIES

10. 5 BROWN-EYED BLONDES

11. SUM = 19

12. PERIMETER =  $4\sqrt{181}$ , or decimal equivalent

13. 50 FEET

14. 28 % LOSS

15. MEAN = 19

16. AREA = 3 SQUARE UNITS

17. Y-INTERCEPT =  $(0, 3/2)$

18. A = 2

<p>19. Ricardo entered an orchard with 7 gates, and picked some apples. When he left, he gave the first guard half of his apples, and 1 apple more. To the second guard, he gave half of his remaining apples, and 1 more. He did the same to each of the remaining guards, and left the orchard with 1 apple. How many apples did he gather in all?</p>	<p>19. 382 APPLES</p>
<p>20. A square centered at the origin has its vertices on the <math>x</math> and <math>y</math> axes. The graph of the function <math>y = f(x) = ax^2 - 4</math>, <math>a &gt; 0</math>, passes through 3 of the square's vertices. Solve for the value of <math>a</math>.</p>	<p>20. <math>A = \frac{1}{4}</math> or .25</p>

**Profile of New Mathematics Faculty**

Capital Community College

Prior to teaching, **Michael Proulx** spent 20 years working in the insurance and financial services industry as an Actuary and Investment Broker. Mike has a BA in Mathematics from Connecticut College, a MS in Education from the University of New Haven, and an MA in Mathematics from Central Connecticut State University. Mike has held adjunct positions at Manchester Community College and CCSU, prior to obtaining his current position as Instructor of Developmental Mathematics at Capital Community College. Mike and his wife Maryann live in Newington and enjoy traveling and playing golf.



Gateway Community College

**Amanda Sweeney** joined Gateway this fall as a developmental mathematics instructor in the College Advancement Studies Department. Amanda graduated summa cum laude from UCONN with a BS in Mathematics before moving into their graduate program where she subsequently

earned a MS in Applied Mathematics. After graduation, Amanda taught both at UCONN Avery Point and Naugatuck Valley Community College. Outside of teaching, she is the mother of three beautiful girls and is very active in her community. She works tutoring and mentoring the 6 residents of the Guilford ABC House. In addition, Amanda volunteers with Guilford Youth Mentoring and the St. George parish. She is adapting to the pace of full-time work in the face of PA 12-40 and loving life in the beautiful new downtown facility.



### Middlesex Mathematics Faculty Contribute to ICTCM

Middlesex Mathematics professors **Mary Rayappan** and **Jennifer Jacek** travelled to Orlando, Florida for the International Conference on Technology in Collegiate Mathematics. They reported that it was a wonderful experience to be with colleagues from around the world who shared their knowledge and expertise. They are sure that the new ideas and knowledge will undoubtedly assist in student learning.



Sabermetrician **Bill James** developed the Fibonacci Win Points system in the 1990's, as a way to evaluate baseball pitchers' Hall of Fame chances. He published his results in his 1990's book: *Whatever Happened to the Hall of Fame?: Baseball, Cooperstown, and the Politics of Glory*. In this presentation, we look at what he did, the mathematics involved, and possible improvements to the method.

Bill first talked about the famous **FIBONACCI SEQUENCE**, which occurs in many applications. The sequence goes:

**0,1,1,2,3,5,8,13,21,34,55,89,.....**

We know that the ratio of successive terms approaches a limit, which becomes the Golden Ratio, or Phi, which is about 1.618. We can see that early on, as  $8/5 = 1.6$ . Moreover,  $5/8 = .625$ , so that the reciprocal of  $8/5$  is about 1 less than  $8/5$ . More generally, if we denote the terms of the Fibonacci sequence as  $F_1, F_2, F_3, \dots, F_n$ , then the limit (as  $n$  goes to infinity) of  $[F_{n+1}/F_n]$  approaches the Golden Ratio, Phi, or 1.618. Also, the limit (as  $n$  goes to infinity) of  $[F_n/F_{n+1}]$  approaches  $1/\text{Phi}$ , and is 1 less than Phi as well. This would be .618.

What does this have to do with baseball, you may ask? Well, James figured that a HOF pitcher's career win percentage figures to be right around  $1/\text{Phi}$ , or .618. As an example, Bob Lemon, who won 20 games several times with the 1950's Indians, won 207 career games, and lost 128. His win percent =  $(207) / (207 + 128) = .618$ , which is at that magic #! James then figured that a pitcher's wins, win %, and games over .500 were the key components in his plan. Hence, he came up with the **Fibonacci Win Percent (FWP)** formula. Here is how it works.

$$FWP = (\# \text{ of Wins}) * (\text{Win}\%) + (\# \text{ of Wins} - \# \text{ of Losses})$$

This can be written as:

$$FWP = (W) * (\text{Win}\%) + (W - L)$$

We illustrate this with several examples, and you will get the chance to calculate this for yourself!



Example: **Bob Lemon**

WINS = 207, LOSSES = 128, WIN % = .618, WINS – LOSSES = 207 – 128 = 79.

So, his **FWP** =  $(207) * (.618) + 79 = 207$ .

Curiously enough, that FWP value of 207 is the same as his career win total of 207! Is that a coincidence? In order to answer that question, we need to test out pitchers with career win percentages that are both above and below that .618 benchmark.

Example: **Whitey Ford**

WINS = 236, LOSSES = 106, WIN % = .690, WINS – LOSSES = 130.

So, his **FWP** =  $(236) * (.690) + 130 = 293$ , which is above his career win total of 236. His win % is  $> .618$ .

Example: **Gaylord Perry**

WINS = 314, LOSSES = 265, WIN % = .542, WINS – LOSSES = 49.

So, his **FWP** =  $(314) * (.542) + 49 = 219$ . This is well below his win total of 314. In this case, his win % is  $< .618$ .

Therefore, we have a structure to use to evaluate pitchers, and we will now look at some other examples. You and your students can calculate FWP for the pitchers below, and discuss how you would rate these hurlers.

**CHART 1: DATA SET ON PITCHERS**

Pitcher	W	L	WIN %	W – L	FWP
Guidry	170	90			
Pedro	219	100			
Koufax	165	87			
Wynn	300	244			
Kaat	283	237			
Gibson	251	174			
Drysdale	209	166			
Hunter	224	166			
Tiant	229	172			
John	288	231			

Marichal	243	142			
Blyleven	287	250			
Ryan	324	292			
Pettitte	240	138			

This can help us see who the real Hall Of Famers are. However, we might question how James came up with this, in terms of empirical justification. Does the # of wins carry too much weight? What about strength of team, park factors, ERA, run support, defense, etc.? In other words, how can the model be improved? That will be our next topic to grapple with!

**The James system probably gives wins too much weight!** Here is a suggestion for modifying this system. Wins – Losses are useful, but so also is adjusted Earned Run Average, or ERA<sup>+</sup>. So, we could therefore do the following, as a possible approach:

$$(\# \text{ of Wins} - \# \text{ of Losses}) * \text{Phi} + \text{ERA}^+$$

This can be written as:

$$(W - L) * (1.618) + \text{ERA}^+$$

Let's use this method on **Bob Lemon**. (W = 207, L = 128, W – L = 79, ERA+ = 119)

His value using this metric is **(79)\*1.618 + 119 = 247**.

Yet another route is to do the following:

$$(\# \text{ of Wins} - \# \text{ of Losses}) * \text{Phi} + (\text{ERA}^+) * \left(\frac{1}{\text{Phi}}\right)$$

This can be written as:

$$(1.618) * (W - L) + (0.618) * (\text{ERA}^+)$$

Therefore, for Lemon, we would have **1.618\*79 + .618(119) = 201**, which is just below his win total of 201.

Here are some additional examples using this approach:

For Koufax, we would have: **1.618\*78 + .618\*131= 207**.

For Marichal, we would have: **1.618\*101 +.618\*122 = 239**.

For Ryan, we would have: **1.618\*32 + .618\*112 = 121**.

I invite you to complete the original chart, using this modification, and maybe you and your students could come up with something even better!

## REFERENCES:

1. BILL JAMES'S BOOK, MENTIONED ABOVE, REGARDING WHAT HAPPENED TO THE HOF, OR THE POLITICS OF GLORY
2. THE ESPN BASEBALL ENCYCLOPEDIA, BY GILLETTE AND PALMER
3. BASEBALL-REFERENCE.COM



AMATYC Updates

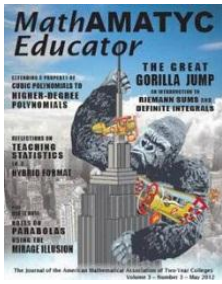


Submitted by

Jane Tanner

AMATYC Northeast Vice President  
Onondaga Community College

I hope everyone is having a great semester. It is hard to believe that the fall semester is almost over. I also hope that you were able to attend the 38<sup>th</sup> Annual AMATYC Conference in Jacksonville, FL on November 8-11, 2012. The conference was very successful.



AMATYC is currently looking for an editor for our journal, *MathAMATYC Educator*. Pete Wildman has done a superb job since the new journal started in 2010 but he has decided that it was time to move on to other challenges. Would you like to read the articles in this journal before everyone else? Then you might be the right person to become the next editor. More information is available at

<http://www.amatyc.org/documents/MathAMATYCEducatorEditor2012.pdf>.

If being an editor isn't for you, the position of Traveling Workshop Coordinator just might be. Hopefully you will have noticed that there are a lot of professional development



opportunities available for AMATYC members – including the conferences (go to <http://www.amatyc.org/Events/conferences.htm> and click on any conference to see handouts and recordings) and webinars (go to <http://www.amatyc.org/publications/webinars/index.html> to view past ones). Traveling workshops can come to you and AMATYC is in need of someone to coordinate these offerings. This person in this position will assist the Professional Development Coordinator in developing workshop options and curricula for new workshop strands. More information can be found on pg. 12 of <http://www.amatyc.org/publications/AMATYC-News/2012August.pdf>.

There are still other opportunities to get involved in AMATYC. Have you considered becoming a member of one of AMATYC's academic committees? There are nine of them so there is sure to be one (or more) to pique your interest: Developmental Mathematics, Division/Department Issues, Innovative Teaching and Learning, Mathematics for AAS Programs, Mathematics Intensive/College Mathematics, Placement/Assessment, Teacher Preparation, Research in Mathematics Education for Two-Year Colleges, and Statistics. More information is available at <http://www.amatyc.org/committees/index.htm>. All of these committees do meet at the annual conference, but they are also encouraged to meet electronically throughout the year.

Many two-year college mathematics instructors pay their AMATYC dues only when they can attend a conference. Please consider joining AMATYC and maintaining your membership even when you can't attend a conference? Your support of this organization dedicated entirely to the teaching of mathematics at the two-year college level is greatly appreciated and helps us stay on the cutting edge of professional development as well as other services that we offer to two-year college mathematics faculty and their students.

It is my pleasure to currently serve as your Northeast Vice President. However, I will be stepping down due to term limits at the end of 2013. Have you considered running for this position? If the answer to this question is yes, you need to submit your nomination by February 1, 2013. More information on how to do this will become available by the end of the year at [www.amatyc.org](http://www.amatyc.org). Please let me know if you have any questions about the duties and responsibilities of this position. I will admit that there has been some work involved, but it has been very rewarding to see the changes that have been made in the organization during the past five years. You too could be help guide the organization through the next two years!

I hope to see you soon.

Jane

**Newton at the Bat**

**Submitted by:**

Steve Krevisky  
Professor of Mathematics  
Middlesex Community College  
April 2012

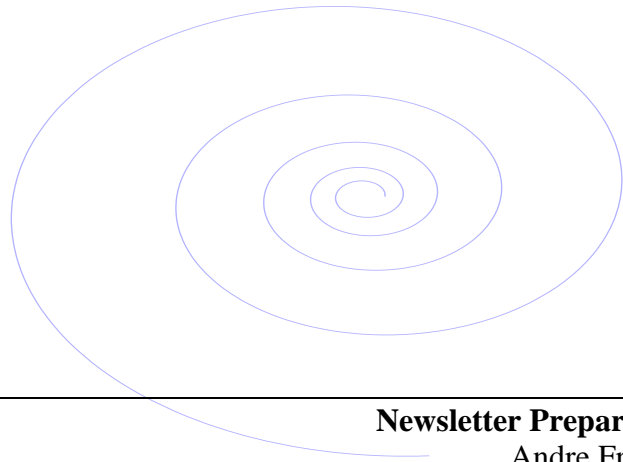
THINGS LOOKED MIGHTY GLOOMY  
FOR THE LOGARITHMIC NINE THAT DAY  
THE SCORE STOOD  $\pi$  to  $e$  WITH BUT SQUARE ROOT OF 2 INNINGS TO PLAY  
AND WHEN EUCLID DIED ON FIRST, AND PYTHAGORAS DID THE SAME  
A SICKLY SILENCE FELL UPON THE PATRONS OF THE GAME.

A STRAGGLING FEW GOT UP TO LEAVE; THE REST STAYED IN DESPAIR  
IN HOPES OF SEEING A RALLY, TO SAVE THE DENIZENS FAIR.  
YET GAUSS UNLEASHED A DOUBLE, AND KOVALEVSKAYA DID THE SAME  
SO THERE STOOD A PROBABILISTIC CHANCE OF SAVING THIS FINE GAME!

THE CROWD BEGAN TO ROAR AS NEWTON CAME TO BAT  
NO APPLE FALLING ON HIS HEAD, TO BE REAL SURE OF THAT!  
THE EXPONENTIAL PITCHER COULD REALLY HUM THAT PEA  
SO NEWTON HAD TO BE A JUDGE; THE BALL HE COULD THUS SEE  
THE PITCH CAME IN TANGENTIALLY, AND ISAAC SWUNG HIS BAT

THERE WAS NO DOUBT HE'D MADE CONTACT  
YOU COULD HEAR THAT MIGHTY THWACK!

O SOMEWHERE IN THIS FLATLAND THE SUN IS SHINING BRIGHT  
CHILDREN LAUGH AND JUMP AND PLAY  
AND REJOICE AT NEWTON'S MIGHT  
FOR THERE IS NOW JOY IN MATH LAND  
AS MIGHTY ISAAC HIT IT OUT!



---

**Newsletter Prepared by:**  
Andre Freeman  
Professor of Mathematics, Capital Community College  
Mathematical images were generated by © *Mathematica* by Wolfram Alpha  
© November 2012

---