May 2013 VOL XCVII, ISSUE 11

HARMONICS

1916 South Jersey Radio Association 2013

Behind The Scenes At The QTH Of The SJRA Historian

What happened? An EF5 tornado, a category 5 hurricane, a 9.2 earthquake, tsunami, volcano, great flood, maybe all of the above and many more. The result is a mega mess to the 5th power.

This is the SJRA Historian held prisoner by over 100 years of SJRA History stuff and what you see is only the tip of the historic iceberg. There is more devastation on the kitchen table, dining room table, dining room floor and family room. Some of the chaos has even claimed chairs, tables, sofas, coffee tables, the area in front of the fire place, counter tops and even the radio area. The rug in that back room is covered with so much History stuff that I have not seen said rug in about a year.

With the spring thaw I started to try to sort out our 100+ year old History files. There are boxes, tubs, bags, and file cabinets filled to capacity and the word order does not exist. I started to haul things out of those file cabinets and found papers, photos, awards, letters, etc. along with several unclassified life forms just stuffed into drawers or floating free. Some were crumpled or stuck between sections of the file cabinets. The oldest item recovered so far is 'The First Annual Official Wireless Blue Book of the Wireless Association of America' dated May 1909. There are also many photos all over the place. I will be bringing some of them to meetings to see if anyone can shed some light on the who, where, or when aspect of these pictures. There are pictures of many of you 'way back when.' Other findings include forms, special events, field days, manuals, rosters, awards, certificates, newspaper articles, qsl cards, plays, member and guest sign in sheets. Did you know that in May 1997 66 members signed in for that meeting? There were probably more, but sometimes we forget to sign that book. Please enter and sign in please. I am now dating myself. I also unearthed constitutions and By-Laws – oh my.

Our entire kitchen except the area by the stove and sink along with that 'back room' is a No Walk Area. Those SJRA archives are certainly good in the Math de-

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SOUTH JERSEY RADIO ASSOCIATION

HARMONICS is published monthly and is the official news letter of the South Jersey Radio Association. The SJRA was established on June 16, 1916 and has been meeting continuously since it's inception. The club has been affiliated with the American Radio Relay League since 1920.

The SJRA meets each month on the fourth Wednesday, January through September; and usually the third Wednesday, October, November and December; in one of the Meeting Room of the Gibson House at 525 East Main Street, Marlton, NJ 08053. Visitors are always welcome at our general meetings. **"Our Meetings are Smoke Free"**

SJRA operates the K2AA Repeater (145.290 - PL 91.5) located in Medford, NJ and the K2AA DX Cluster (145.770) located in Mt. Laurel, NJ. The repeater and DX Cluster are open for use without restriction to all licensed amateur operators. The DX Cluster is also accessible on line (see www.sjra.org for information).

There are currently over 150 SJRA members active in most all aspects of amateur radio. Membership is by application and is subject to the approval of the Board of Directors. Club dues are currently $30/yr. for memberships, $22.50/yr for retired-person membership (62 plus 1 yr membership), and $15/yr. for additional family members and student membership. Membership information is available on the K2AA Repeater or from Mary Von Lintig, KV2M, 856-772-6475

EMAIL: sjra *at* sjra *dot* org SJRA's web page www.sjra.org

Mark O'Brien, K2AX, is the SJRA/ARRL VUCC card checker

Joe Fisher, KC2TN, is the SJRA/ARRL WAS card checker

Harmonics is now available on the WEB in pdf format at:
http://www.sjra.org
South Jersey ARRL Section News is available on the WEB at:
http://www.arrl.org/sections/?sect=SNJ

Officers

President: Ken Botterbrodt, K2WB
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Rec. Sec: Lou Priestley, N2HQL
Cor. .Sec: Ted Groke, W2TAG

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Rich VonLintig, KV2R
Debbie Pullaro, W9QWN
Ira Weinstein, W2IRA
Mary VonLintig, KV2M
Jim Vecchiola, KR2T
Al Witner, N3AVT

Committees:

Historian: Mary VonLintig, KV2M
Membership: Mary VonLintig, KV2M
Field Day: Ken Botterbrodt, K2WB
Contests: Jon Mac Millan, W2MC
Repeater: Joe Fisher, KC2TN
Programs: Kathy Edwards, KM2KME
H&W: Kathy Edwards, KM2KME
Awards: Lou Priestley, N2HQL
Hospitality: Jean Priestley, KA2YKN
Nets: John Fogleboch, WY2J
Publicity: Debbie Pullaro, W9QWN
Picnic:: Debbie Pullaro, W9QWN
Ways & Means: Ray Golley, N3RG
Property: Jon Mac Millan, W2MC

Harmonics Staff:

Publisher/Editor: Ted Groke, W2TAG or Don Beaulieu, WA2DUE
Circulation: Mary VonLintig, KV2M; Jim Vecchiola, KR2T

LOCAL WEEKLY NETS

Monday	K2AA, Medford	145.290 @ 8PM
Thursday	Various Locations	28.405 @ 8PM

Harmonics Deadline

Articles submitted for the next HARMONICS will be accepted until Monday, June 10, 2013. Email:
ted.w2tag *at* gmail *dot* com

SWAP SHOP - For Sale/Wanted ads are free of charge and are accepted for Amateur Radio related items only. While ads are not restricted to SJRA members, there is only limited space available and members have priority for listings. No items will be accepted for inclusion in the Swap Shop from commercial vendors or traders. All ads must be submitted at least three weeks prior to the scheduled SJRA general meeting date.

GENERAL ADVERTISING - Limited commercial advertising is accepted on a space available basis. Annual advertising rates range from $25/yr (Min 1/8 page) to $200/yr (Full Page). Information is available from Ken Botterbrodt, K2WB.

Meeting Minutes

General Meeting Minutes of 24 April 2013

The meeting opened at 1940 At the Gibson House in Marlton, NJ. Presiding was Jon, W2MC. All officers and directors were present except K2WB, W2TAG and N3RG. Minutes of the March meeting were approved as printed in Harmonics Motion N2HQL/WA2DUE.

The treasurers' report was sent by e-mail and read by W2MC.

New members by Mary, KV2M: Bob, KC2HEN; Dave, KD2DVV; and Tom, KE2ES. She also, as historian, showed a copy of a 1948 membership list, asking members to indicate whether they were younger or older than the list.

Health & Welfare by Kathy KM2KME: Joe Duffin, W3ORA, had a heart attack, presently doing OK, W2MAT, Matt Merry is having cancer surgery on Monday, Gordo, N2YU is currently in a Voorhees rehab, not accepting visitors. Programs: April- Hilltop to hilltop , May- the ever popular Storm Robotics Team.

Nets by John, WY2J: 5-7 on 10 meters, 4-5 on 2. He reports the repeater goes up and down during the nets. He has shut down the "Lunch Club".

Corresponding Secretary: Several correspondences sent regarding estate items.

DX by Jack, N2VW: ZS8 Prince Edward and Marico Isl., May 2013-May 2014; VU2VKU Laccadives 23 Apr-5 May; ZK3N Tokelau- On air till 30 April; 5U Niger 5U9AMO till 30 May.; T6DA Afghanistan a US op till August; 5B4ALB , Cypress 15-28 May; A35JP Tonga 5-22 May. "DX IS"

Web Page- Logins sent, Harmonics up!

Awards- The O'Brien girls were presented with their "Kennys."

Second Nominations- : Pres; K2WB; VP, W2MC; Treas, N3RG; Rec. Sec., N2HQL; Cor. Sec., AC2FO: Directors; W9QWN, KR2T, KV2M, KV2R, KM2KME, W2IRA, N3AVT, and WB2EOD. An election for Directors will be held at the May meeting.

VE report: As in Harmonics. Recess at 2020, to program at 2035.

Board Meeting Minutes of 1 May 2013

The meeting was held in the conference room at the Gibson House. All were present except W9QWN, W2TAG and N3AVT. Ken K2WB attended by phone.

Minutes of the April meeting were approved as printed, motion to accept N2HQL/W2MC. Treasurer- as at General meeting- we need to get insurance certificates for the Gibson House and the field day site.

Members proposed: John Pardini, AI2D; Alan Cohen, WA3ZKI, motion to accept KV2M/W2MC, members accepted.

We need to hire a tower climber for the repeater, Motion to spend $500 for repairs N3RG/KM2KME , passed.

Contests: None, June VHF coming up.

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HAM TECH

Vol 4 No. 5 by John - WY2J

wy2j *at* arrl *dot* net

Single and Multiband HF Wire Antennas

Part 1 of 4: Center Fed Dipole and its Cousins

Introduction – Hams tend to build simple wire antennas but lacking machine shops in their garage they buy the big Yagi. From comments heard on the air, like "I can't understand why I don't get out to a certain area of the world" or "I can't hear Joe on the 10 meter net while Dave is S-9" or "maybe I should try a different antenna than my 80 meter dipole." "My SWR is low, I just don't understand." Well this four part series on rather simple to build wire antennas is just for you. I call this first part Center Fed Dipole and its Cousins because the four antennas discussed are all just center fed dipoles, but the electrical lengths are different and where the signal goes and feed impedances are drastically different. While the article is intended as a learning exercise there is enough detail to allow you to build any one of them.

Center Fed Half Wave Dipole - This is the most basic of dipoles, the smallest, about 34 feet on 20 meters, easiest to feed with an input impedance between 50 and 80 ohms, has two equal broadside main lobes with -3 dB azimuth angles of nearly 80 degrees each and -4 dB (less than 1 S unit) of 90 degrees each. Erecting two of these dipoles at the same height, one NS and the other EW will give you full 360 degree coverage with four nulls of less than an S unit. Of course a DPDT switch is needed to select the desired antenna. Let's erect one at 66 feet height, about one electrical wavelength at 20 meters, and see how it performs. I am assuming average ground (conductivity equals 0.005 Siemens and Dielectric Constant equals 13) typical of South Jersey unless you have beachfront property at the shore.

The elevation coverage of this dipole is shown in Figure 1 below.

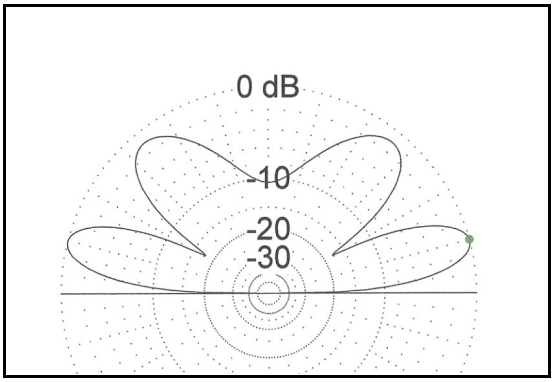

Figure 1, Elevation Plot of HW DP At 20 Meters. Peak Main Lobe At 15 Degrees. Gain equals 7.3 dBi

Figure 2 is the Azimuth Plot at 20 Meters. Note the two broadside lobes cover nearly 180 degrees of azimuth space.

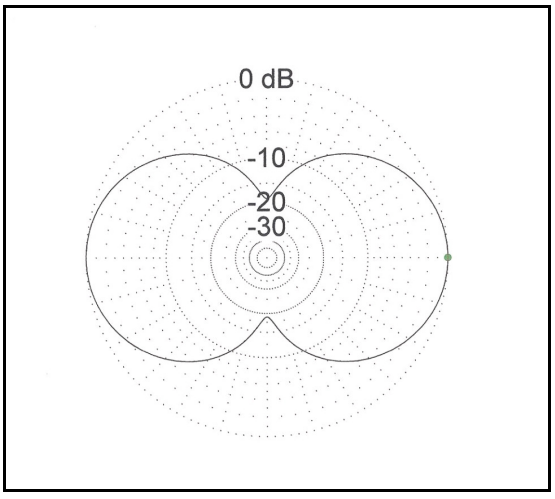

Figure 2, Azimuth Plot of HW DP At 20 Meters.

***(Ham Tech** from page 4)*

The SWR for this antenna is very low, 1.05:1 at the center frequency of 14.175 MHz and rises to about 1.3:1 at band edges when fed with a 75 ohm source. The center frequency SWR will rise to a little over 1.5:1 with a 50 ohm feeder. At band edges it will still be below 2.0:1.

Full Wave Dipole aka 2 Element Colinear – Lets increase the length of the dipole by a factor of two to approximately 67 feet at 20 meters and see what happens. Figure 3 shows the azimuth pattern. The main lobe structure at broadside is very similar to the HW DP. The – 3 dB beam width shrinks from 80 degrees to 51degrees and the gain increases by 1.57 dB to 8.85 dBi.

The SWR is low (1.13:1) but only if you feed it with a 4000 ohms transmission line, something you can't really build. Feeding it with an electrical quarter wave of 450 ohm ladder line will drop the 4500 ohm impedance down to about 45 ohms giving you a 1.1:1 very good SWR. Still we didn't gain much over the HW DP.

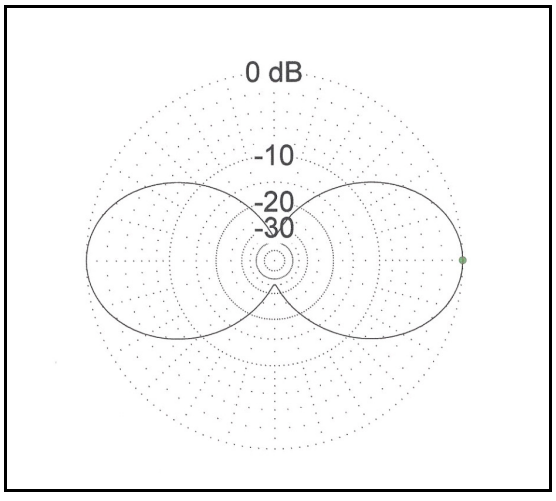

Figure 3, Full Wave Dipole Azimuth Pattern.

The Extended Double Zepp – If we increase the dipole length from 1 to 1.28 wavelengths (85+ feet at 20 M) we get a very useful antenna. The broadside gain peaks at 10.4 dBi or 3.1 dB above the HW DP and the sidelobes are just beginning to show at about 12 dB below the main lobes. This is a great antenna as long as your interests are in one general direction like NE to cover Europe.

The impedance of this antenna is complex (220 – j950 ohms) but can be handled well with a ladder line feeder and a balanced tuner, not just on 20 but also on 30, 40 and 60 meters. It is a little too short for 80 meters. Next month I will show you how to fix this antenna for a resonant feed of 450 ohms that when passed through a 9 to 1 current balun results in a good 50 ohm match.

The 1.5 Wavelength G5RV – We are now entering the space of what I call the harmonic antenna. To build broadside pattern gain by increasing the length of the an-

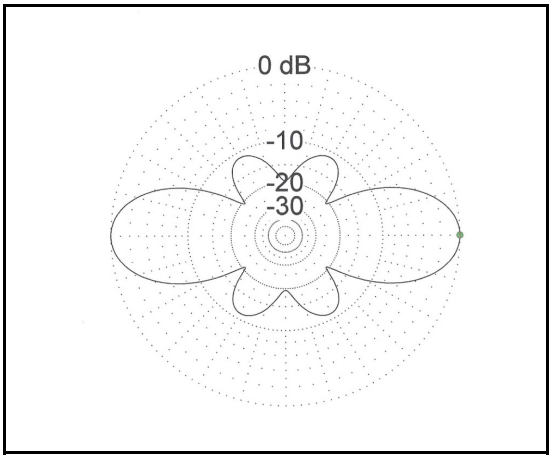

Figure 4, 1.28 Wavelength EDZ Azimuth Pattern

(Continued on page 6)

(***Ham Tech*** *from page 5)*

tenna you must keep the current across the length in phase. This requirement is violated when the length exceeds a wavelength for a simple wire radiator. We see low sidelobes in the 1.28 wavelength

EDZ but at 1.5 wavelength in the G5RV the pattern splits into four giant sidelobes and two main lobes each about 2 dB below the sidelobes which have a gain of about 8.4 dBi each. This is a very useful antenna if your goal is to spray your signal around most of azimuth space with 6 big nulls in between the six peaks on 20 meters. Two broadside lobes return at lower frequencies.. The azimuth pattern is shown in Figure 5.

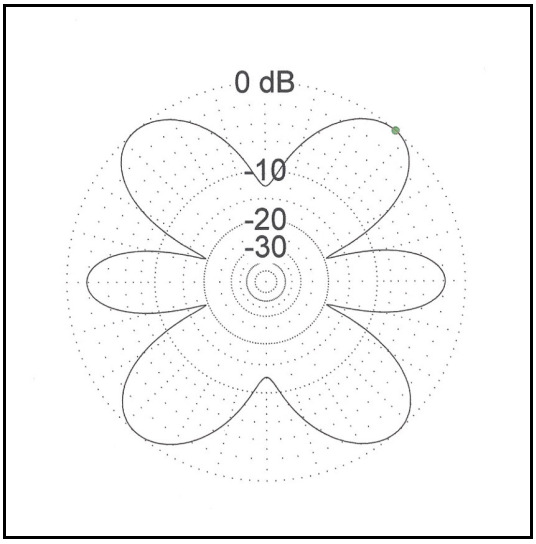

Figure 5, The 1.5 Wavelength G5RV Azimuth Pattern

The impedance of the G5RV is complex over most usable bands but is easily matched into on 20 meters. If you only use it on 20 M you can get away without a

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President's Message

Ken – K2WB

The May meeting program promises to be very exciting. Our friends "Storm" from the robot club of Lenape and Cherokee High Schools will be showing us their latest competitor. Last year's demonstration was very impressive.

The SJRA will be demonstrating Amateur Radio on Friday June 7th, 2013 at the Rice School in Marlton, NJ. We will be using the club call sign K2AA in three sessions starting around 9:20 AM. We need stations to contact either on the repeater or on 40 meters.

We need your help with Field Day (it will be here before we know it) mark your calendars. Field Day is June 22-23 with setup on the 21st. We will be having several workshops such as erecting temporary antennas, operating etc. If you have questions or like to volunteer please contact me at ken@k2wb.com or call me at 856.983.1924 and follow the prompts.

This year the club picnic will at the Field Day sight. Visit SJRA web site for more details.

The SJRA VE team congratulates the following individuals who have given permission to post their 05/08/2013 Amateur Radio License achievements in Harmonics.

Gary Triplo
1425 Bittersweet Drive
Blackwood, NJ 08012

Donald W Creitez
15 Sussex Ave
Voorhees, NJ 08043

Both individuals have passed the Technician Class License exam

21 Things To Do After You Get Your Ham Radio License

Dan, KB6NU, cwgeek *at* kb6nu *dot* com

Before you even start reading this chapter, I'll warn you that I'm a big fan of Morse Code (often referred to as CW, or "continuous wave"). So big, in fact, that it's safe to say that I use Morse Code to make 95% of my contacts.

I am not, however, one of those guys that thinks you're not a "real ham" if you didn't pass some kind of code test. In fact, I think that eliminating the code test was a good thing for ham radio. The code test kept a lot of good people out of the hobby.

Having said that, I think there are lots of good reasons you should learn Morse Code. Please keep an open mind as I list them:

Tradition. Operating CW is an amateur radio tradition. When amateur radio began, CW was the only mode. When you learn and operate CW, you're following a very long line of hams who have operated CW.

Effectiveness. Talk to a CW operator, and it's likely that he'll chew your ear off about how CW is a more effective mode than voice. While the difference is probably not as much as the CW operator would like you to believe, the difference is real. When conditions are poor, you'll be able to make CW contacts and not voice contacts.

DXing. That being the case, CW operators have an advantage when it comes to contacting DX stations because their signals will get through when voice signals are unreadable. Also, if you consider that there are more voice operators than CW operators, you'll have a better chance of contacting a much-wanted DX station because there will be fewer operators trying to contact him using CW than there will be using voice.

Contesting. In most contests, you get more points for a CW contact than you do for a voice contact. Sometimes the bonus is 100%, sometimes only 50%. In either case, doesn't it make sense to know CW if you want to be a contester? You'll score more points for the same number of contacts.

Simplicity/Efficiency. The equipment you need to operate CW is a lot simpler than the equipment needed to operate voice modes. And, because CW is more efficient, you can, in general, use a lot less power to make contacts with CW than you need to make contacts using voice modes. This has spawned a whole sub-group of hams called QRPers, who delight in using very minimal equipment to make contacts.

Using CW also saves bandwidth. The bandwidth of a CW signal is approximately 200 Hz, while the bandwidth of a single-sideband (SSB) voice signal is about 3 kHz. That is to say that the voice signal is 15 times wider than the CW signal. Another way to say this is that for a given amount of bandwidth, you can fit 15 times more CW signals than you can SSB signals.

It's just plain fun. Once you learn CW and start using it, it can be a lot of fun. Like any activity that requires some skill, mastering that skill can be a source of pride. Not to sound too vain about it, but I enjoy the praise I get from my fellow hams when I can display my CW operating skills.

How to Learn Morse Code

In the old days if you wanted to learn Morse Code, you went out and bought a vinyl record or maybe a cassette tape that had prerecorded lessons on them. Another ap-

(Continued on page 8)

***21 Things** from page 7)*

proach—the approach I used—was to tune in a Morse Code signal and start to associate the patterns of dits and dahs to characters of the alphabet. Both methods had drawbacks.

Today, things are a lot easier. Not only are there free resources available, I think they are much more effective in teaching people code than the old LPs or cassette tapes. Here are the three resources that I recommend:

G4FON Koch CW Trainer. Ray Goff, G4FON, has perhaps written the most popular CW training program. It runs on the PC, and is completely free! The program uses the Koch method. The idea is that you learn to receive at the speed you would like to eventually achieve, but you learn only one character at a time. This method works very well for lots of people.

K7QO Code Course. The K7QO Code Course takes a different approach. This set of .mp3 files comes on a CD-ROM and teaches you the code letter by letter. It starts out sending the letters slowly, then ramps up. The nice thing about this course is that you can use it on any device that is capable of playing .mp3 files. To obtain a copy of the CD-ROM, send $1 per copy and a self-addressed envelope to FISTS, PO Box 47, Hadley MI 48440.

Learn CW Online. LCWO uses the Koch method to teach Morse Code. Because it runs in your browser, you can use this website no matter what computer you happen to be using.

Whatever method you choose, I hope you'll consider learning the code. See you on the CW bands!

See Dan's Blog at: www.kb6nu.com

This is a partial article from the May 2011 issue of the SJRA Harmonics newsletter.

Local Storm Hits SJRA

Ira – W2IRA
w2ira *at* arrl *dot* net

At the April club meeting we met a dream team, a group of talented designers and builders who delivered a working custom machine in six weeks. The team members were not industry stars hand-picked from top engineering firms; they were our neighbors, the youth of America. They were students from sister Lenape and Cherokee High Schools, collectively known as the Storm Robotics team.

So, you won't want to miss this years STORM visit during the May 2013 SJRA General Membership Meeting for a great evening of technology and youth accomplishment.

Ted, W2TAG

Items For Sale

All the following items are currently in use but will be dismantled as soon as the property is sold. All Items are located in Medford, NJ:

Force 12 C19XR Tri-band Yagi.

Cushcraft A3WS 12M, 17M and 30M add on kit. The 30 meter add on kit is not installed and is new in the box.

60 FT ROHN 25 with a fold over section that is not installed. It has been in storage out of the weather. This tower is complete with base plate and rotor shelf. The top section is flat for mounting a thrust bearing.

For information regarding all of these items listed, please contact past SJRA President Rich, N1RK, via email: n1rk *at* verizon *dot* net or phone: 609-654-5020.

Special Health and Welfare Information

Old time SJRA member Jim, K2JXW, in Merchantville, has been diagnosed with cancer and has undergone surgery in March. Jim has been a ham in Merchantville since 1954. He and K2JXX worked with the Civil Defense in Camden County along with Brownie, W2PAU, Ed Washburn, W2RG, and several other old time members of SJRA. Jim is a founder of the Amateur Radio Lighthouse Society, which now has 2000 members and he is a member of QCWA (50+ years).

Monthly Puzzle

Don—WA2DUE, wa2due *at* arrl *dot* net

First let us review last months puzzles.

The distance between the Earth and its Moon varies over the course of the orbit of the moon, from 356,700 km (221,600 mi) at the perigee and 406,300 km (252,500 mi) at apogee. What time elapses in each case between a radio signal transmitted from Earth, reflected off the Moon and returns to the same place on Earth?

Solution: If we divide each distance by the speed of light (299792458 m/s) we get the time for one way travel of the radio signal. Multiplying each by 2 we obtain 2.38 and 2.71 seconds respectively.

In a standard baseball field the diamond is a square 90 feet on a side. The pitchers mound is 60.5 feet from the home plate. How far is it to first base from the pitchers mound?

Solution: Here we have a triangle consisting of sides from the pitchers mount to home plate, distance to first base, and distance from first base to the home plate. We know the length of two of the sides and the include dangle at home plate. Therefore the application of the Law of Cosines solves the problem.

The Law of Cosines: c2 = a2 + b2 -ab (cosine C). Substituting 90 for a, 60.5 for b and 45 for C we get 63.72 feet. Rich, W2RDS solved this problem differently and got the same answer.

Rich, W2RDS, and Fred, W2EKB submitted solutions to both problems. Thank you both.

For this month let us enjoy the following:

(Continued on Page 11)

(Behind the Scenes** from page 1)

partment – especially multiplication. When I manage to get some order out of the current chaos, I will attempt to tackle the boxes and tubs of stuff that have taken up residence in the basement. I did make an interesting 'find' when attacking the stuff in the 'back room.' I found my pink flowered flip-flops that had been missing since last summer.

The Leap Year Special even though this is not a Leap Year will be continued next month. By the time order is restored, it will probably be another leap year.

73 to all and I am History Mary, KV2M

(Ham Tech** from page 6)

tuner but not so on 80, 40, 30, 15, and 10 meters. On 30 meters the azimuth pattern looks more like the FWDP and at 40 and 80 it resembles the HWDP. Of course the 15 degree elevation peak doubles to 30 degrees on 40 Meters and doubles again on 80. Gain drops on the lower frequencies.

Next Month - We look at two more dipoles, the Off Center Fed 80 Meter Dipole and The Carolina Windom. We also find out how to improve the performance and match a 50 coax feed to the EDZ with 2 capacitors and a 9 to 1 current balun.

(Monthly Puzzle** from page 9)

The secant of one of the angles of a right triangle is 2. State the angles in degrees of this triangle?

A capacitor with a reactance of 12 Ohms is in parallel with a resistance of 16 Ohms. What is the resulting impedance and phase angle?

Please submit solutions and or comments to wa2due *at* arrl *dot* net.

(Meeting Minutes** from page 3)

Health & Welfare- Deb, W9QWN was absent due to a death in the family. W2MAT had his surgery, no report on progress.

Programs: May- Storm Robotics, June- Field day Wrap. July AA3RR will discuss the Laurel VE System

There has been a request to have a General upgrade class, we will solicit volunteers to teach.

Web, by IRA, W2IRA: Adding membership list in May, considering adding new pages.

Repeater, by Joe KC2TN: An inspection was made tonight, cabling at top of tower is deteriorated and has been stuck to roof by re-roofing.

Motion by W2MC/KV2R to bring Pine Hill repeater to General Membership meeting., motion passed.

New Business: School demo on June 7th.

Field Day will now be referred to as Amateur Radio Workshop by SJRA.

KV2R sending invitations to visit Amateur Radio Workshop to many elected officials.

KV2R suggested a 100th anniversary decals or bumper stickers.

Adjourn at 2050

List Your "For Sale" Ham Stuff in the SJRA Harmonics

Email Ted, W2TAG, with your listing, ted.w2tag *at* gmail *dot* com

SJRA Jackets, Shirts, Hats

Order NOW – Next order going in soon!

Spring Jacket is $44 (S,M,L,XL), Fall Jacket is $55 (S,M,L,XL),
Shirts are $27 (S,M,L,XL), Hats are $25 (one size fits all)
Name and Call Sign embroidery included….Larger sizes slightly more!
Email Joe, KC2TN, with orders or additional info:
kc2tn *at* comcast *dot* net

Amateur Radio FCC License Testing

The SJRA sponsors *FREE* Amateur Radio FCC License testing on the second Wednesday of each month. The location is: 443 Commerce Lane, Suite 5, West Berlin, NJ 08091. Registration is at 7:00 PM and testing begins at 7:30PM. Walk-ins are accepted.

VE team members can be reached at VE@SJRA.org. A calendar and more information can be found on the SJRA web site.

May Meeting
Fourth Wednesday

May 22, 2013

"Our Meetings are Smoke Free"

The meeting commences promptly at **7:30PM** in the first floor Meeting Room of the Gibson House on Main Street, Marlton, NJ 08053. Guests are always welcome.

Program For May:

On May 22, 2013 we will have the honor once again to have the STORM Robotics Team from Lenape High School system, come and demo their invention for this year. If you have never seen them before, you are in for a treat. These kids are amazing!!

Our June meeting will be our reports on Field Day!! Don't miss out!!

May 2013 Health and Welfare:

Happy Birthday to our members with May birthdays: Mark Connors, N3UPD; John Foglebach, WY2J; Kathy Edwards, KM2KME; Mike Robison, KC2QIL; Joe DeMarco, KC2SGV; and Mark Dodds, KC2VOW.

Kathy Edwards, KM2KME

First Class Mail

South Jersey Radio Association
PO Box 1026
Haddonfield, NJ 08033