

MOUNTAIN SPARK GAPS

**NPARC—The Radio Club for the
Watchung Mountain Area**



**Website: <http://www.nparc.org>
Club Calls: N2XJ, W2FMI
Facebook: New Providence Amateur Radio Club
(NPARC)**

VOLUME 53 NO. 6 June 2018

Regular Meetings

7/9 & 7/23

Monday 7:30

DeCorso Community Center



New Providence Memorial Day Parade

Meeting Schedule

Regular Meeting: 7:30—9:00 PM
2nd Monday of each month at the
NP Senior & Adult Center
15 East Forth Street
New Providence

Informal Meeting: 7:30—9:00 PM
4th Monday of each month
Same location

Everyone is Welcome

If a normal meeting night is a holiday,
we usually meet the following night.
Call one of the contacts below
or check the web site

Club Officers for 2018

President: W2PTP Paul Wolfmeyer
201-406-6914
Vice President: K2GLS Bob Willis
973-543-2454
Secretary: K2AL: Al Hanzl
908-872-5021
Treasurer: K2YG Dave Barr
908-277-4283
Activities: KA2MPG Brian Lynch
973-738-7322

—On the Air Activities

Club Operating Frequency
145.750 MHz FM Simplex

Sunday Night Phone Net
Murray Hill Repeater (W2LI) at 9:00 PM
Transmit on 147.855 MHz
With PL tone of 141.3 Hz
Receive on 147.255 MHz
Net Control K2AL

Digital Net
First & Third Mondays 9 PM
28,084 — 28,086
Will be using PSK and RTTY
Net control K2YG

Club Internet Address

Website: <http://www.nparc.org>
Webmaster KC2WUF David Bean
Reflector: nparc@mailman.qth.net
Contact K2UI, Jim

MOUNTAIN SPARK GAPS

Published Monthly by NPARC, Inc.
The Watchung Mountain Area Radio Club
P.O. Box 813

New Providence, NJ 07974
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Contributing Editors:
WB2QOQ Rick Anderson
W2PTP Paul Wolfmeyer
K2UI Jim Stekas

Climatological Data for New Providence for
May 2018

The following information is provided by
Rick, WB2QOQ, who has been recording
daily weather events at his station for the
past 36 years.

TEMPERATURE -

Maximum temperature this May, 93 deg. F (May
3)

Last May(2017) maximum was 92 deg. F.
Average Maximum temperature this May, 77.3
deg. F

Minimum temperature this May, 41 deg. F (May
1)

Last May(2017) minimum was 39 deg. F.
Average Minimum temperature this May, 57.0
deg. F

Minimum diurnal temperature range, 5 deg.
(55-50 deg.) 5/13

Maximum diurnal temperature range, 39 deg.
(80-41 deg.) 5/1

Average temperature this May, 67.2 deg. F
Average temperature last May, 60.5 deg. F

PRECIPITATION -

Total precipitation this May - 4.60" rain
Total precipitation last May - 6.85" rain

Maximum one day precip. event this May -
May 27, 1.21" rain

Measurable rain fell on 14 days this May, 13
days last May.

YTD Precipitation - 22.99" (includes rain +
melted snow, as of 5/31/18)

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Rick Anderson
6/13/18

243 Mountain Ave.
New Providence, NJ
(908) 464-8912

rick243@comcast.net

Lat = 40 degrees, 41.7 minutes North

Long = 74 degrees, 23.4 minutes West

Elevation: 380 ft.

CoCoRaHS Network Station #NJ-UN-10

President's Column June 2018

A busy month with the Fox Hunt and Field Day!!

We participated with TCRA on June 3rd for a Fox Hunt and Barbeque at Echo Lake in Mountain-side. NPARC participants provided side dishes such as salads, coleslaw, chips, etc and desserts. TCRA provided soda, hot dogs, hamburgers, rolls and condiments. We attempted to find a practice transmitter first, and then moved on to a more difficult walking hunt (still in the park). When completed the Road Fox Hunt was started (around 3PM). Our participants were: N2SLS, KC2WUF, KC2ONL plus one, K2AL, K2YG, KD2JRI, W2PTP, KC2HLA and KD2ONY, and K2HEN. Thanks to Bob Willis, K2GLS, for all his work researching and sourcing the handi-finder; unfortunately, he had a conflict the day of the event.

So how did we do? Well—we had a good time! But we needed more testing, calibration, and practice, practice, practice with our recently built equipment. Maybe next year....

On to Field Day, June 23rd and 24th at the back field of Governor Livingston High School in Berkeley Heights. Rain was predicted for Saturday but did not occur until Sunday early morning—terrific. Over 1060 Qs (786 phone, 227 cw and 59 digital)!!—for 1358 claimed points. In addition bonus points were 1570—wow!!

We had set out with several goals in mind:

Two HF stations-- “Near HF station” delivered many phone contacts and lots of overnight CW contacts (courtesy of Bill W2UDT). Bharat (M0OKB), Kevin (N2TO), and our “singing ham” Hillary were strong operators with George (WA2SQO) doing a yeoman’s logging job.

A digital HF station: Bob’s (K2GLS) “Far HF Station” worked well, the reorientation of the antenna (perpendicular to HF1 antenna) helped. Bob’s preplanning and testing paid off well with Sam’s IC7100. Al, K2AL’s CW contribution was very significant too—spread over both HF stations.

Have a GOTA station to enable our new members to get-on-the air: Barry (K2JV) coached Henry (K2HEN), Don (N2SLS), Phil (KC2ONL) and some prospective hams to success! Several passed the 20 Q point adding more points to our score! Plus we had a couple of youth try their hands at GOTA...

Continued success with VHF: completed thanks to Al (K2AL) and Rick (WB2QOQ)-- that tower set up is always impressive!

Involve more operators and fill more time slots—we could have used more operators and loggers. We expect some of our GOTA operators this year to move to the HF stations next year!

We also picked up many bonus points, as noted above, including Al’s solar qrp Qs, generator operation, a mayoral visit, Berkeley Heights FD visit, attention to safety, getting the W1AW message, and submitting 10 traffic messages (thanks KA2HZP), etc...

And the food was good (thanks Sam), the grill worked great (thanks Jim KD2ITW), the photo documentation got completed (thanks Jon AE2JP), the publicity was great (the Secretary K2AL winds up with so much to do) and the logging network ran well (thanks Dave KC2WUF)...the food canopy provided good shade (K2YG), the tables were great (KD2EKN), the antenna support (K2EFB) worked well and went up/down well, antenna srings were “shot” (Frank K2EZR) ...and, from my perspective “young guys” Tim, Henry, and Phil were particularly appreciated for setup and teardown...

Thanks again to everyone. As usual in a big team operation, people get missed in the thanks—for that I apologize...everyone’s help was appreciated. **As usual, members stepped up and did what you said you would—that’s a hallmark of NPARC that makes our FD work!**

Be thinking about (and stepping up to) improvements—like computer hardware...for next year

73 for now

Wolf

W2PTP

201-404-6914 or W2PTP@arrl.net

Tri County RC Fox Hunt



The close in Fox



K2ONL and Matt



Some of the DF antennas



K2HEN, W2PTP, K2AL and K2YG.



The barbecue picnic before the FoxHunt at Echo Lake Park

Thanks to K2AL for the Fox Hunt photos.

Will have Field Day pictures and round up next month.

D.C. Circuit Problems

Jim Stekas - K2UI

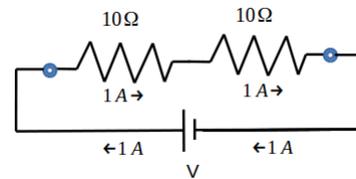
One skill needed to pass an amateur radio license exam is the ability to solve simple D.C. circuit problems. Many prospective hams approach circuit theory by memorizing as many formulas as possible: Ohm's law, resistors in series, resistors in parallel, etc. Often this comes at the expense of more fundamental underlying laws such as the conservation of charge and current¹.

For example, take the simple problem of calculating the equivalent resistance of two $10\ \Omega$ resistors in



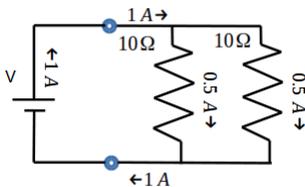
series. I'm confident that every ham reading this knows that when combining resistors in series the total resistance is the sum of the individual resistors, which gives $10\ \Omega + 10\ \Omega = 20\ \Omega$.

The rule for combining resistors in series is not a fundamental law. It is a consequence of Ohm's law and the law of conservation of current: the sum of the currents entering a node in the circuit equals the sum of the currents leaving the node. If we connect our resistors to a battery in a closed circuit we know that the current flowing at any point in the circuit is the same, and for simplicity let's say that current is 1A (see figure at right).



Using Ohm's law ($V = I \cdot R$), we can calculate the voltage drop across each resistor to be 10v. This means that the battery must be 20v, because the sum of the voltages around any loop must be zero². (Another fundamental law³.) Therefore we have a 20v battery which pushes 1A through the pair of resistors, so their equivalent resistance must be $R = V/I$ or $20\ \Omega$.

Lets consider what happens when we connect the resistors in parallel. We use a battery to push 1A of current through the resistor pair. (See figure at left.)



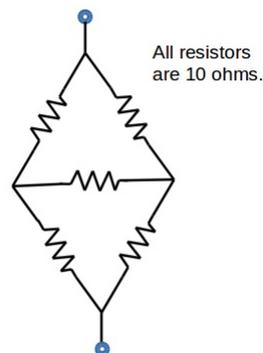
Since both resistors are equal they must share the current equally between them, so each resistor has 0.5A flowing through it. Using Ohm's law, the voltage drop across each resistor is given by $V = I \cdot R$ or $5v = 0.5 \cdot 10$. Our loop rule says that the battery voltage, $V = 5v$ as well. Since the 5v battery pushes 1A through the parallel pair their equivalent resistance

must be $5\ \Omega$ by Ohm's law.

At this point you are either grinning and nodding because you know where this is going, or you are wondering what kind of idiot looks for harder ways to solve trivial problems. Well consider the circuit in Problem 1 and try to calculate the equivalent resistance between the two blue terminals.

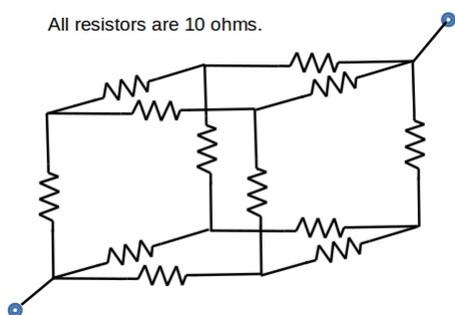
- 1 Current conservation at a circuit node is commonly known as Kirchoff's current law.
- 2 The law that the sum of voltages around a loop equals zero is commonly known as Kirchoff's voltage law, and is a consequence of a more fundamental law: the conservation of energy.
- 3 All of Kirchoff's laws can be derived from Maxwell's equations, which weren't published until some 40 years after Kirchoff's work.

If you have every formula in the ARRL Handbook committed to memory you will quickly realize that none of them apply. There is no cookie cutter formula for Problem 1. (Hint: if you think about current conservation and voltage around loops you can convert the circuit into a much simpler one, easily solved.)



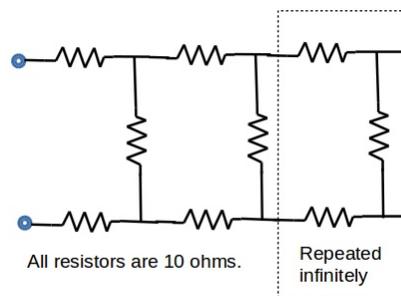
Problem 1

Now that you have solved Problem 1, take a shot at the “cubic” circuit in Problem 2. To solve it you will need to use logic and current conservation. (Hint: assume 1A flows through the circuit and figure out how it gets shared between the various resistors.)



Problem 2

Finally, we come to Problem 3, a circuit constructed from an infinite number of identical sections connected together. Reach into your circuit solving toolbox and grab whatever you can. Don't forget to use your most important tool, your brain.



Problem 3

Answers to the problems will be in next month's Spark Gaps. Until then, post your answers to the Reflector.

