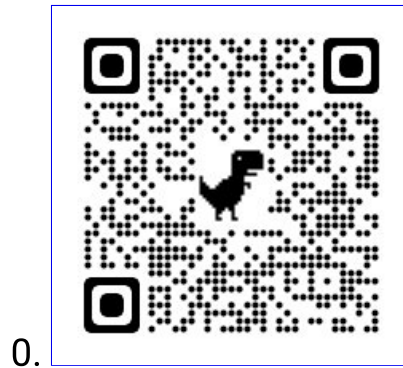


5/10/24

1348



hello.all.mp4

If you click the link above you'll see a movie of a program written in tinyC that randomly displays hello all! for a while. This program uses a Windows-dependent [plugin](#) that positions the cursor and displays a message. If you click the QR Code above this link you'll see the source code of this tinyC program.

1. [What characterizes a well-written computer program?](#)
2. [A Programmer's Guide to the Meaning of Life](#)
3. [Table Of Contents](#)

I have built a "Table Of Contents" for what I feel are the best examples of things we've talked about here in the last couple of years. I hope you find this useful and interesting.

Windows ([tc.exe](#)) and Linux ([tc](#)) executables of the tiny-C interpreter

Libraries and other files used by tinyC that need to be in a directory named pps

4. [library.tc](#), [lrblib.tc](#), [tc.prop](#), [version.prop](#), [mathLib.tc](#), [pigra_lib.tc](#), [pyGraphicsLib.tc](#), [lineLib.tc](#)

Build scripts

5. [buildPlugin.bat](#), [buildPlugin.sh](#)

tiny-C documentation and the machineCall.c source code module of the interpreter

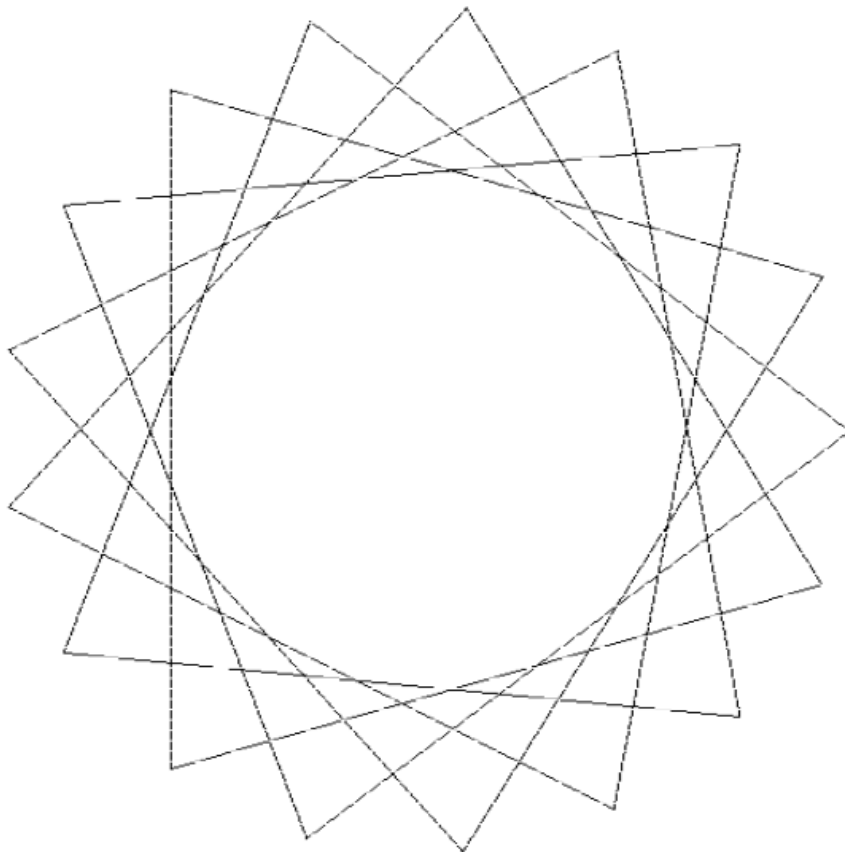
6. [The new classical tiny-C.doc](#), [machineCall.c](#)

tiny-C and C programs (and Pascal and BASIC and Mouse and ...)

Click or press Muzzy (below) to see LEE, a text to handwriting program, in action.



7. [LEETRYM.BAS](#)

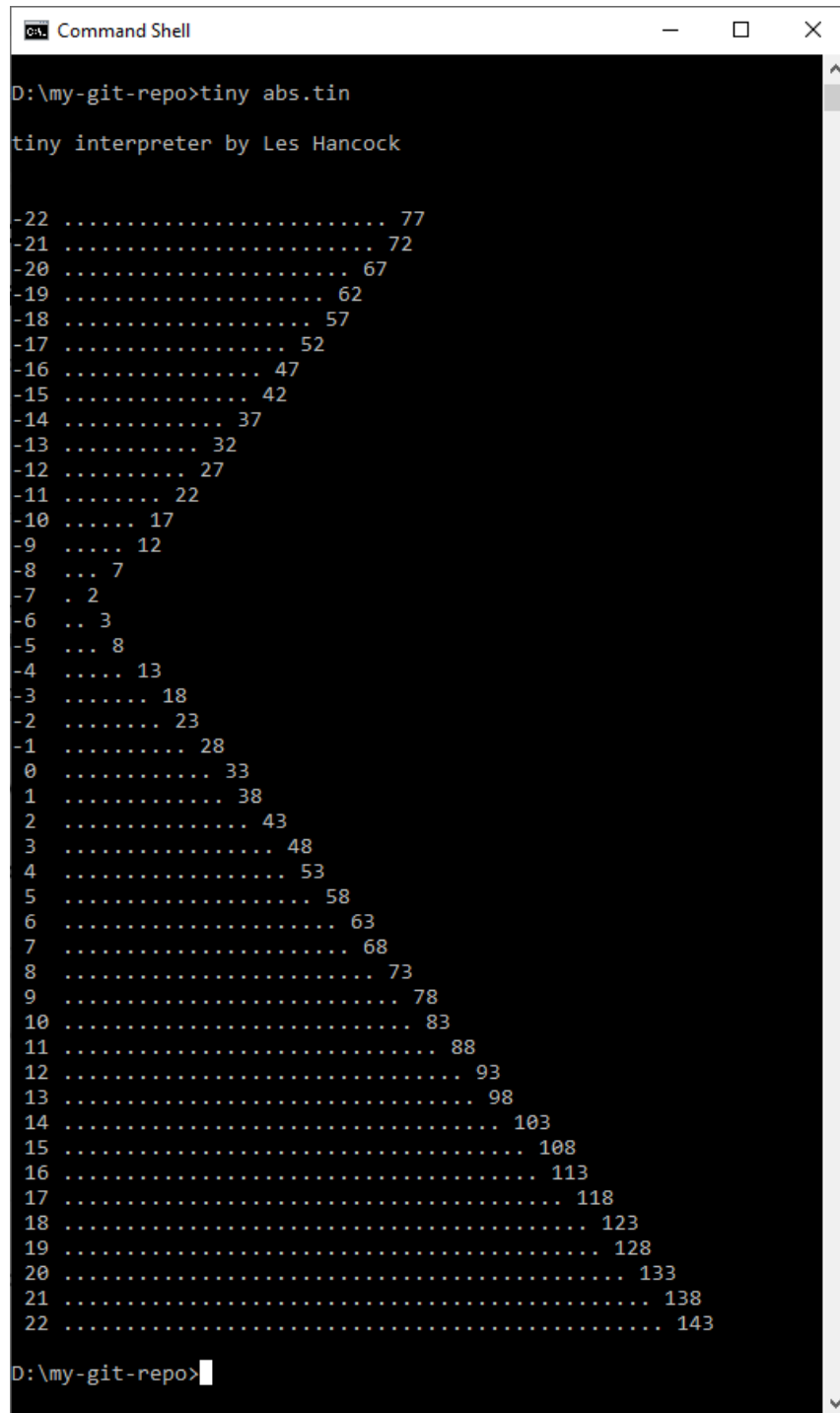


8. [17-point-stars.html](#)

9. [totient.html](#), [totient.6.11.22.tc](#)

10. [star.tc](#) [STARV.BAS](#) [STARPS.PAS](#) [GRAF1.PAS](#) [GRAF2.PAS](#)
[PARAMSTB.INC](#)

11. [series.php](#), [series.php.txt](#)



```
Command Shell
D:\my-git-repo>tiny abs.tin

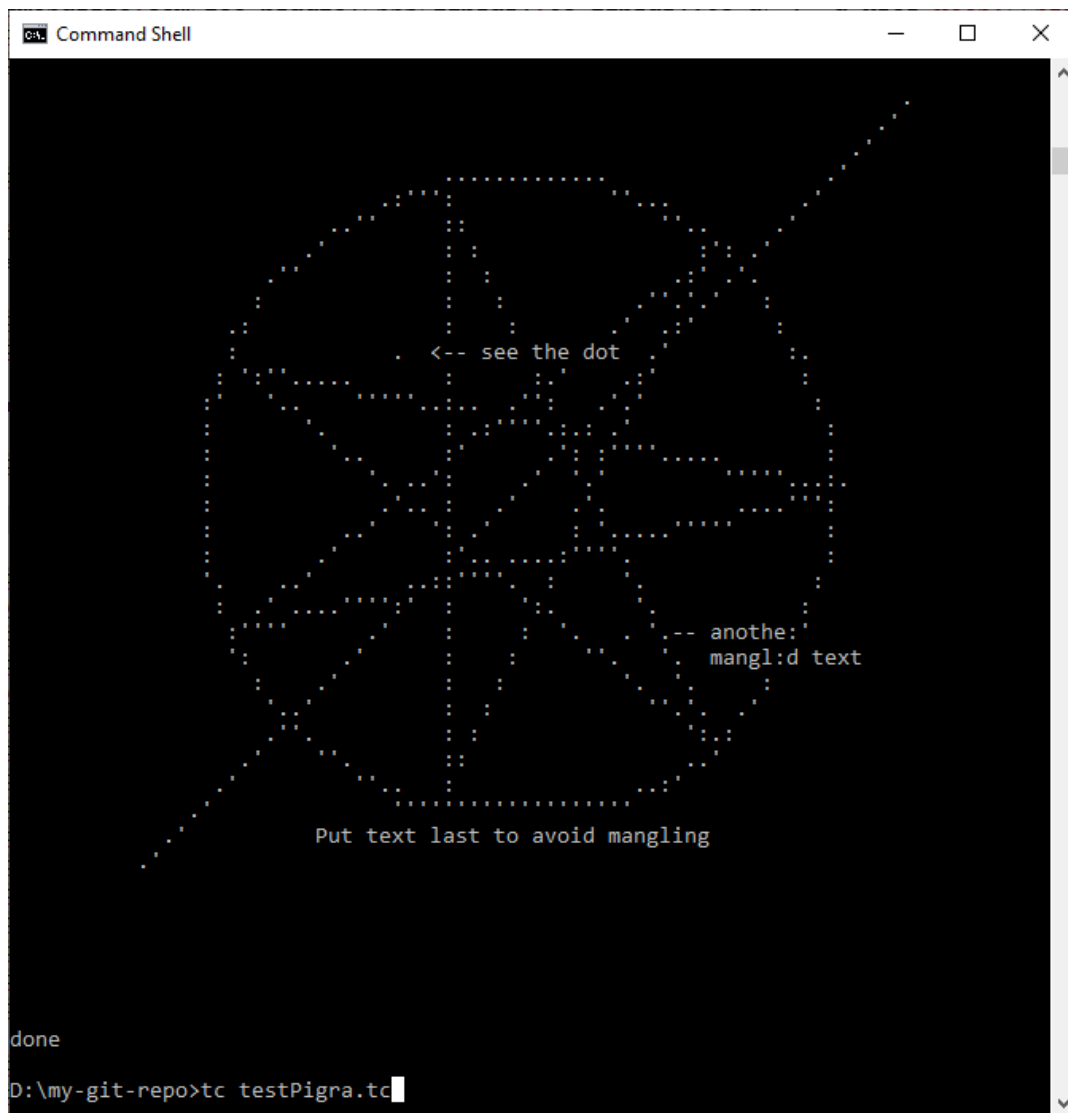
tiny interpreter by Les Hancock

-22 ..... 77
-21 ..... 72
-20 ..... 67
-19 ..... 62
-18 ..... 57
-17 ..... 52
-16 ..... 47
-15 ..... 42
-14 ..... 37
-13 ..... 32
-12 ..... 27
-11 ..... 22
-10 ..... 17
-9 ..... 12
-8 ... 7
-7 . 2
-6 .. 3
-5 ... 8
-4 ..... 13
-3 ..... 18
-2 ..... 23
-1 ..... 28
0 ..... 33
1 ..... 38
2 ..... 43
3 ..... 48
4 ..... 53
5 ..... 58
6 ..... 63
7 ..... 68
8 ..... 73
9 ..... 78
10 ..... 83
11 ..... 88
12 ..... 93
13 ..... 98
14 ..... 103
15 ..... 108
16 ..... 113
17 ..... 118
18 ..... 123
19 ..... 128
20 ..... 133
21 ..... 138
22 ..... 143

D:\my-git-repo>
```

12. [tiny.c](#), [tin.html](#), [dr_dobbs_journal_vol_05.29-37.pdf](#)

13. [amort.tc](#), [amortpi.c](#), [\(1/2\)](#), [\(2/2\)](#), [amort.png](#), [kelsey.c](#)



14. [testPigra.tc](#), [permalink.html](#), [pigra.c](#), [libpigra.windows.so](#), [libpigra.linux.so](#), [libpospi.so](#), [pospi.c](#), [pigra.h](#), [pigra_lib.tc](#), [devil.txt](#)
15. [fibpi.tc](#), [pifib.c](#), [libpifib.windows.so](#), [libpifib.linux.so](#) [fibpi.tc.out](#), [phi.html](#), [phis.html](#), [fib.tc](#), [fib.c](#)
16. [may.2020.challenge.c](#), [\(1/2\)](#), [\(2/2\)](#), [may_2020_challenge](#)
17. [spirala.tc](#), [spiralpi.c](#), [spirala.png](#)
18. [concen.tc](#), [concen.txt](#) [concentration](#)
19. [ssort.tc](#), [ssort.out](#)
20. [tree-128.tc](#), [animals.tr](#)


```
Command Shell - tc tree-128.tc

C:\Users\00076194\OneDrive - CSCU>tc tree-128.tc
*** TINY-C VERSION 1.0, COPYRIGHT 1977, T A GIBSON ***
    This C version copyright 2017, T A Gibson

tree.tc - 3/27/20

0=Quit 1=Ins 2=Del 3=Search 4=List 5=Write 6=Read 7=File Ins : 6

-> Read <-

Input file: animals.tr

8712 bytes read

0=Quit 1=Ins 2=Del 3=Search 4=List 5=Write 6=Read 7=File Ins : 4

Key      Text
2        Flamingo
1         Fox
5        Lady Bug
7        Pterodactyl
4         Toucan
6         Turtle
3         Whale

0=Quit 1=Ins 2=Del 3=Search 4=List 5=Write 6=Read 7=File Ins : 
```

The above is from an early issue of Dr. Dobb's. I modified the code to support 128 records (it used to support only 16).

hancock.tree.html

21. [knapsack.lrb.c](#), [knapsack.lrb.out](#), [knapsack.c](#)

[pbs.tc](#), [pbs.out](#), [pbsinput](#)

22. [md.tc](#)

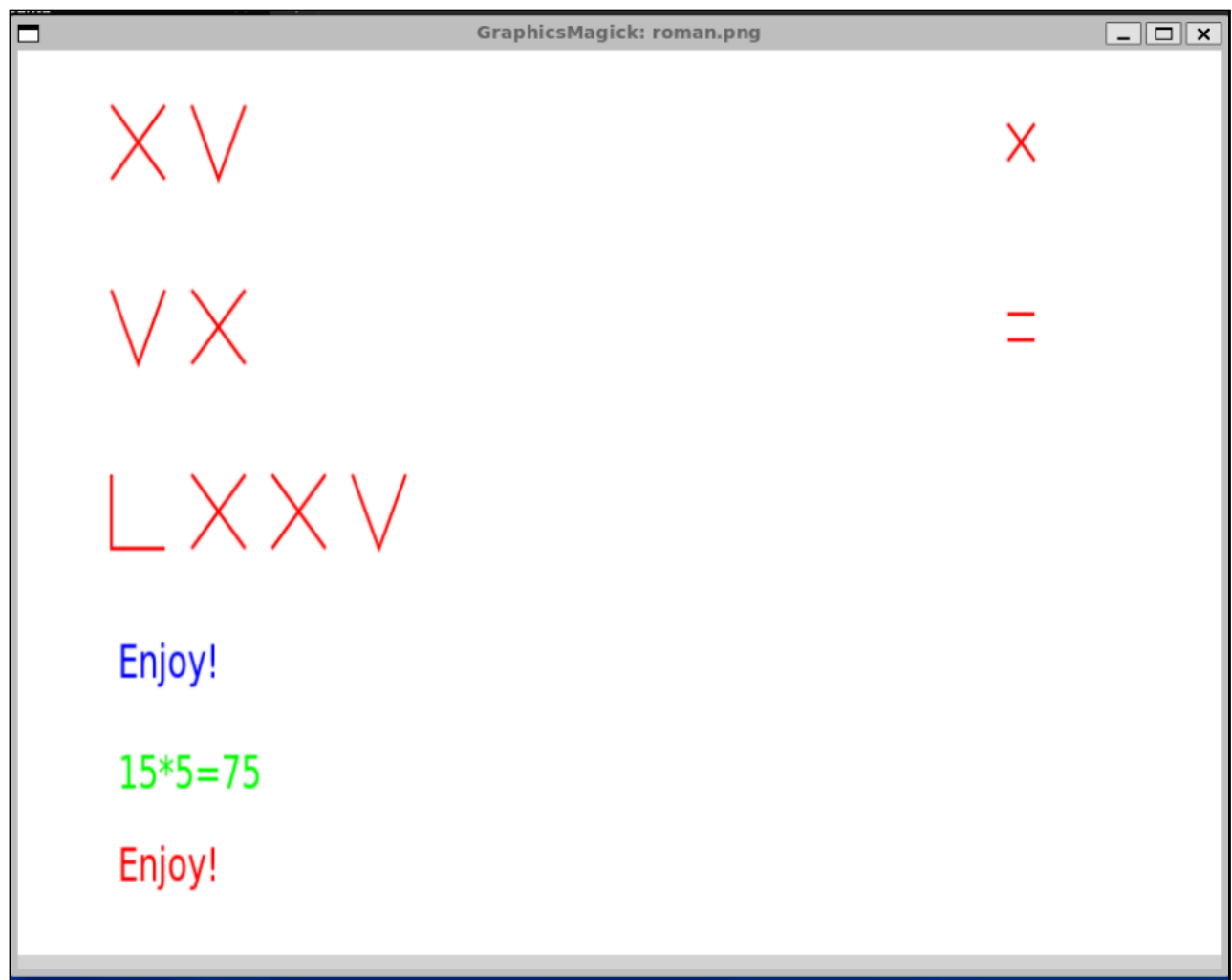


23. [cliffsnotes.html](#), [entropy.c](#), [entropy.c.out](#), [bulls_and_cows_solver.py](#)

24. [integration.amy.try.c](#), [integration.png](#)

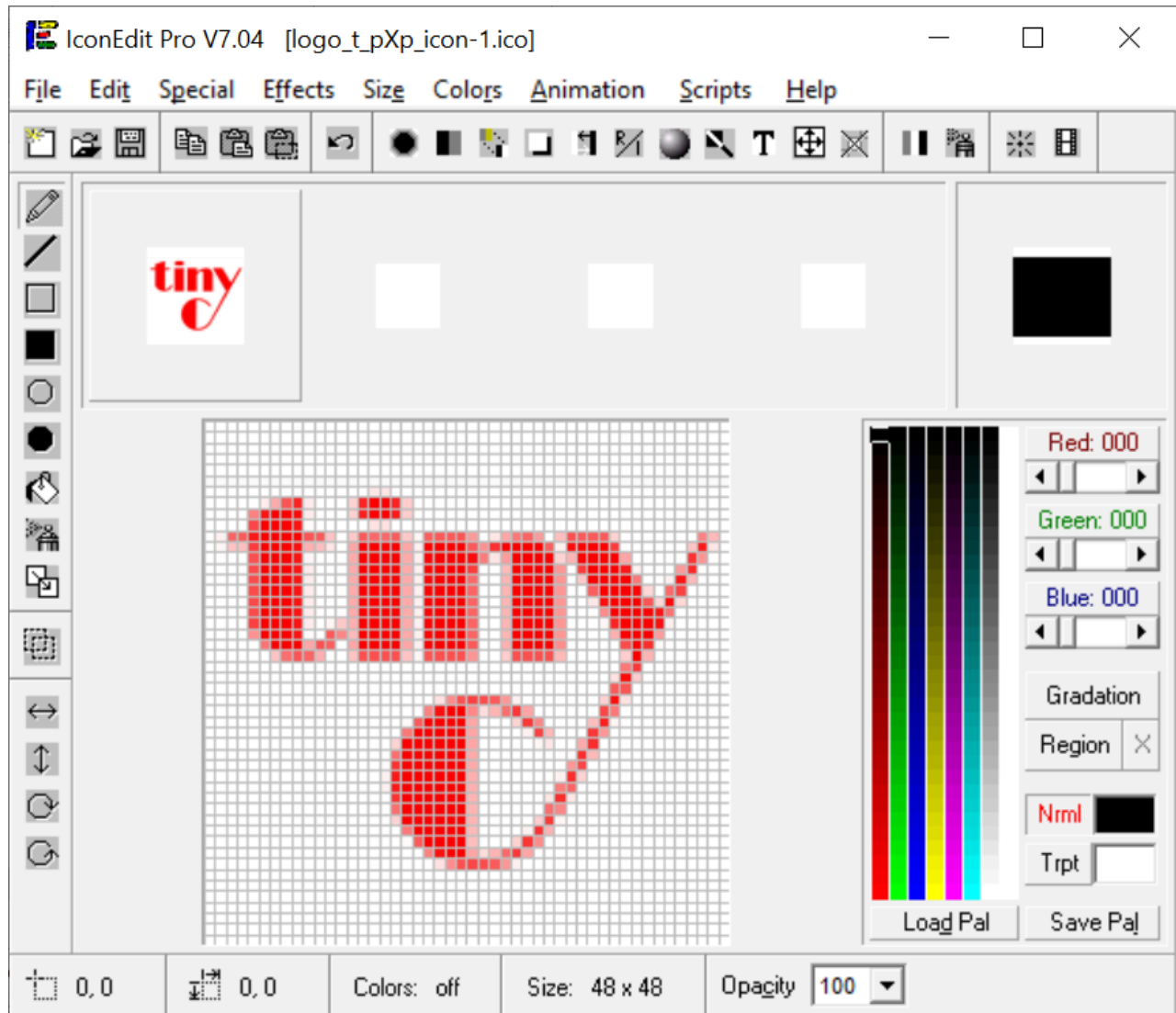
25. [double.html](#), [double.tc](#), [double.out](#) [cristian.double.c](#),
[cristian.new.double.tc](#)

26. [next_c.tc](#), [next_c_doc.html](#)
27. [compress.tc](#), [dompress.tc](#), [compressor.html](#)
28. [xmas.tc](#), [xmas.png](#)
29. [nemo.tc](#), [nemo.karel.html](#), [karel.html](#) [nemo.pc.tc](#), [pospi.c](#), [nemo.kw](#)
[maze.html](#), [maze.tc](#), [maze.kw](#) [karel_2.html](#) [sampler.tc](#),
[sampler.windows.again.tc](#), [sampler.kw](#), [foobar.tc](#) [randwalk.tc](#), [rand13.kw](#)
30. [rdump.tc](#), [rdump.png](#)
31. [slr.tc](#), [slr.png](#)
32. [ver.amy.tc](#)
33. [hrun.tc](#), [hasm.tc](#), [nedanted.hbs](#), [nedanted.hbo](#), [HARBRAD.TXT](#)
[njtc.html](#)
34. [chas.tc](#), [chas.tc.png](#)
35. [matched_pair.tc](#), [tchelp.matched_pair.txt](#)
36. [cairopy.py](#)
37. [roman.2.12.22.tc](#)



Click the image below to see the source code of the tinyC program that generated the image (that was converted into an .ico file and then viewed w/ IconEditPro)

38.



39. [chapter.8.2.1.c](#), [chapter.8.2.1.png](#)

JavaScript Toby Speak translator

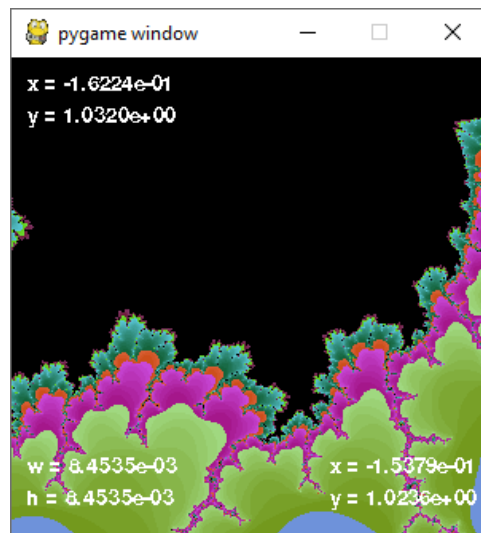


40. [jspeek.html](#), [jspeek.png](#), [all.dic.html](#)

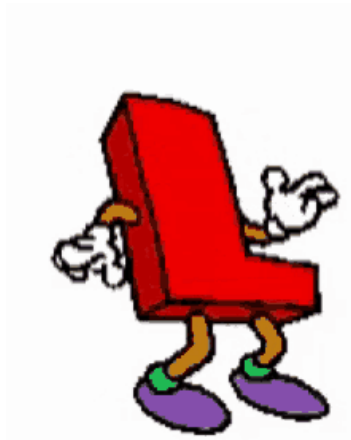
41. [singlyLinkedList.c](#)

42. [6.4.13.html](#), [html.png](#)

43. [steinhaus.tc](#), [rees.sum.square.c](#)
44. [nostalgebra.c](#), [nostalgebra.jpg](#), [nostalgebra.desmos.jpg](#)
45. [Dakota Rauls 1.18 #48 \(boat problem\)](#)
46. [amoeba.linux.tc](#), [amoeba.c](#), [amoeba.html](#)
47. [choc.tc](#), [van.tc](#), [choc.html](#), [candy.tc](#) [candy.c](#), [candy.c.out.html](#)
48. [What color was/were the dragon/s with six heads?](#)
- [Election 2020](#), [Election 2020 output](#)
49. [imagine.c](#)
48. [mandel.tc](#), [mandel.area.tc](#), [mandel.jpg](#), [mandel.mp4](#),
[fractals_no_oo_v3.py](#), [MANDEL42.BAS](#) [MANDEL32.DOC](#), [DOSPrinter.exe](#)
[benoit.html](#)

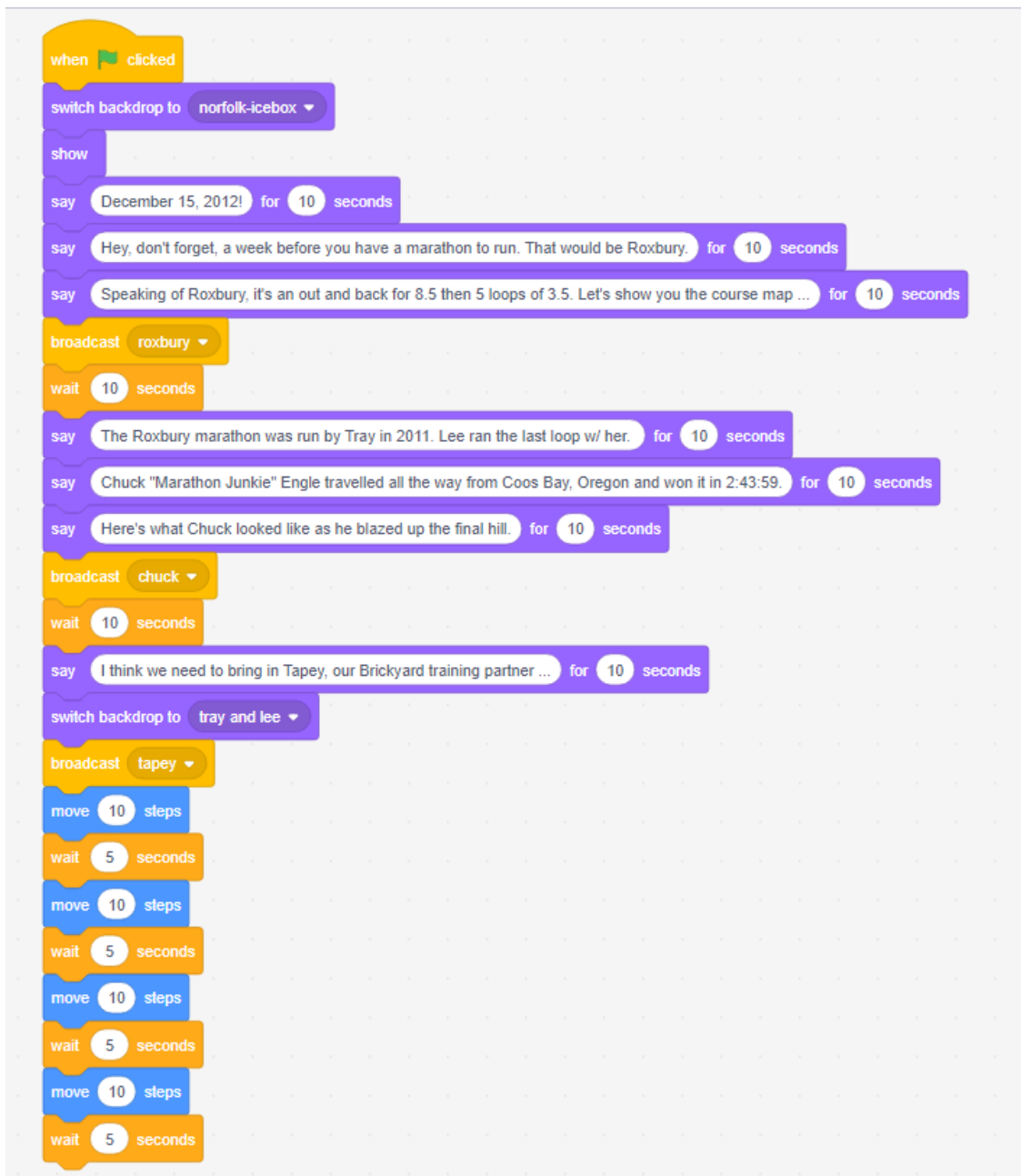


49. [simple_plotter.py](#), [simple_plotter.jpg](#)
50. [factor.tc](#), [factor_doc.html](#)



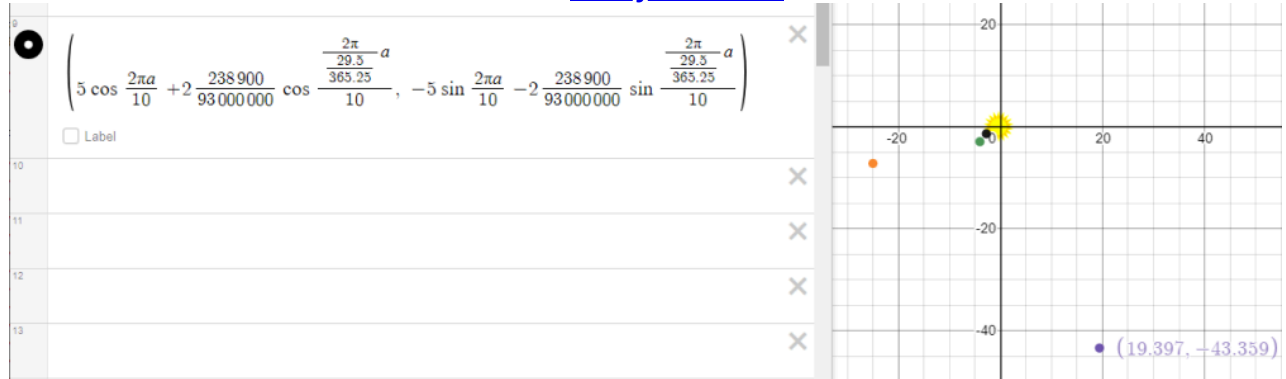
51. <http://primepuzzle.com/dancing/ipl.try.html>

52. <https://scratch.mit.edu/projects/2886014/>



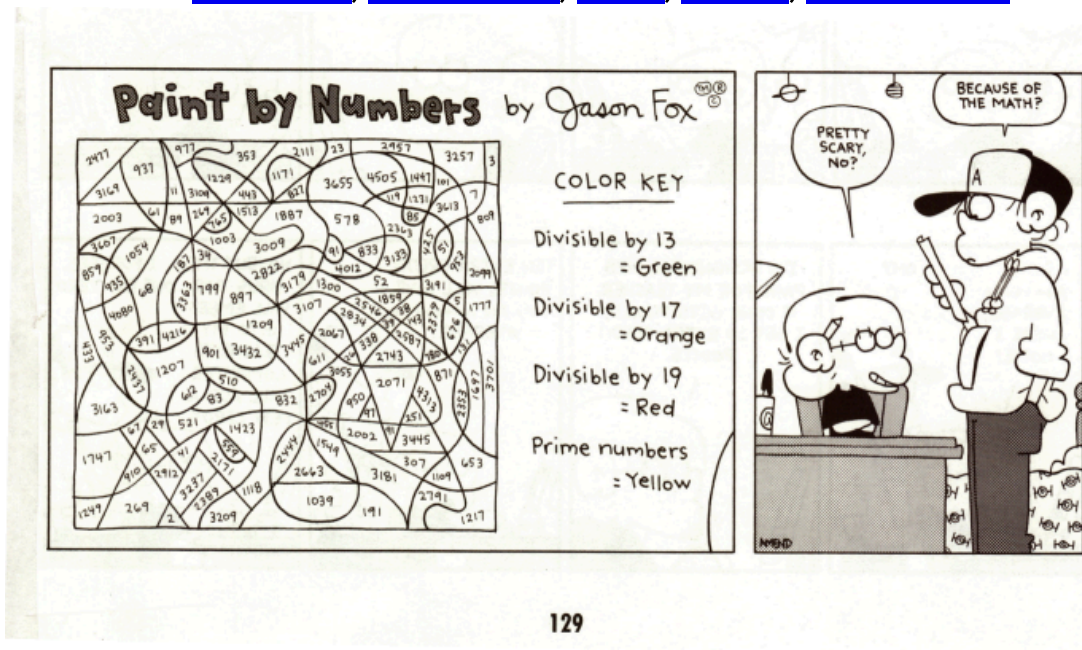
53. paper.puzzle.reader.html

54. [Conjunction!](#)

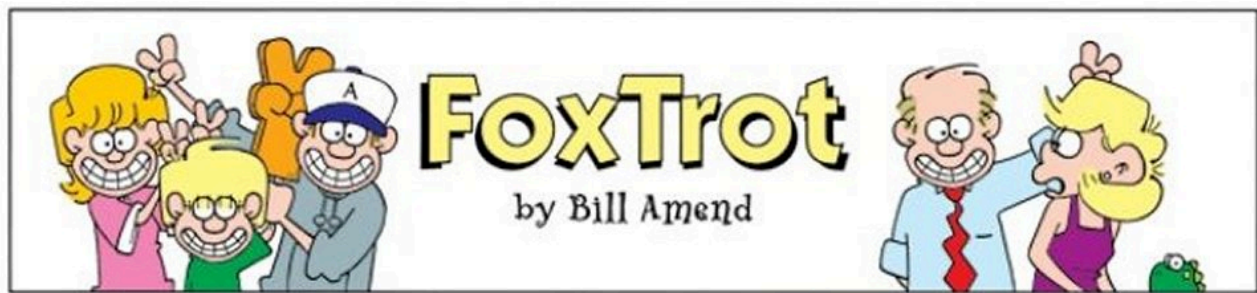


55. [If you're 30' above the surface of the earth how far can you see to the horizon?](#)

56. amend.tc, amend.2.tc, af.txt, saf.txt, amend.html



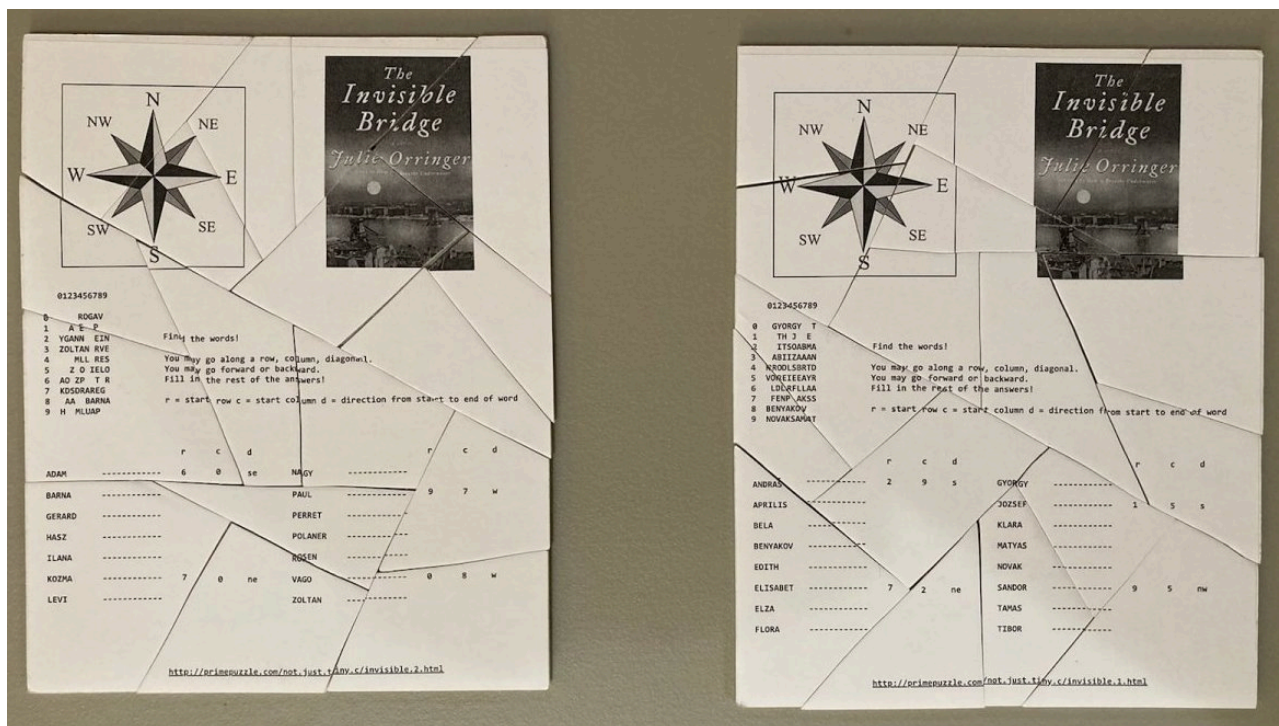
Foxtrot_two-way_translator.html



16-11-13-5-10-2-15-18-13-23-8-11-17-11-12-22-11-12-19

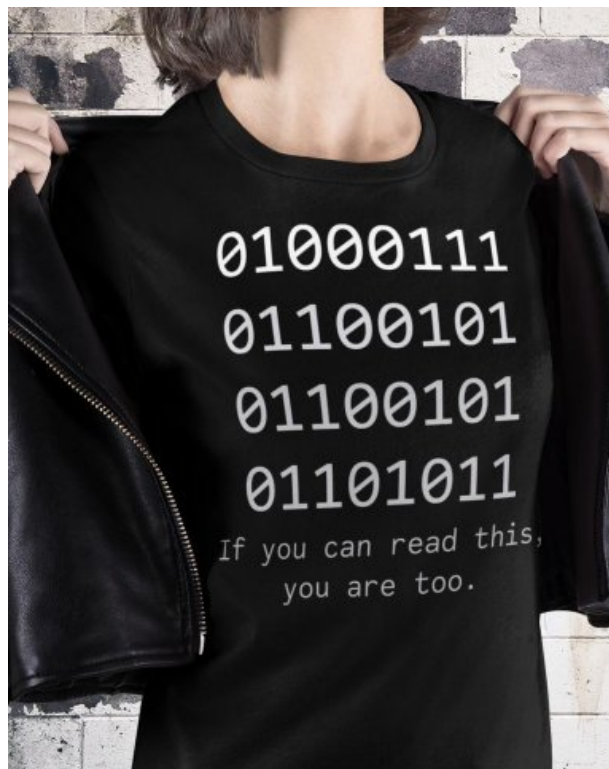
Key:

$A = \sqrt{121}$	$I = \sqrt{13} \times \sqrt{13}$	$R = \frac{4\pi + 5\pi}{\pi}$
$B = 2^3$	$J = \frac{14}{5} \times \frac{10}{4}$	$S = (5 \times 2 \times 2) + 3$
$C = \sin \frac{\pi}{2}$	$K = -26 $	$T = \sqrt{144}$
$D = 51 \div 3$	$L = (9x + 9x) \div 3x$	$U = -3 \cos \pi$
$E = \sqrt[3]{1000}$	$M = (9 \times 11) - (7 \times 11)$	$V = 5^4 \div 5^2$
$F = \frac{1}{2}(\frac{1}{2}(\frac{1}{2}(16)))$	$N = \sqrt{400}$	$W = 2^{(5-3)}$
$G = \frac{5}{3} + \frac{5}{3} + \frac{5}{3}$	$O = 1 + 2 + 3 + 4 + 5$	$X = 9216 \div 512$
$H = 4205 - 4186$	$P = 4^{\sqrt{2}}$	$Y = \sqrt{49} \times \sqrt{9}$
	$Q = \int_0^2 9x^2 dx$	$Z = \frac{14 \cdot 14 \cdot 14}{14 \cdot 14}$



57. words.2.tc, pip.html, words.doc.html the sentence notes, mywordsearch.png, words.1.txt, board.1.txt

58. un-psyhic.tc, recursion.html



59. scacalos.tc runit.tc decbin.c kerouac.txt kerouac.enc

60. [Ed Davis's Tiny integer calculator \(icalc.tc\)](http://Ed Davis's Tiny integer calculator (icalc.tc)), Joel Rees's blog post involving bc and pi jmr.bc [Ed Davis's Toy byte-code compiler/interpreter \(toy.o2bas\)](http://Ed Davis's Toy byte-code compiler/interpreter (toy.o2bas)), toy.exe, primes.toy



70. [four_way.tc](#) A video of this is at [four_way.tc.mp4](#) Tom Gibson wrote a much more ambitious solution in Python. [4way-9-16-18.py](#) A video of this is at [4way.mp4](#)

71. [chutes_and_ladders.html](#)

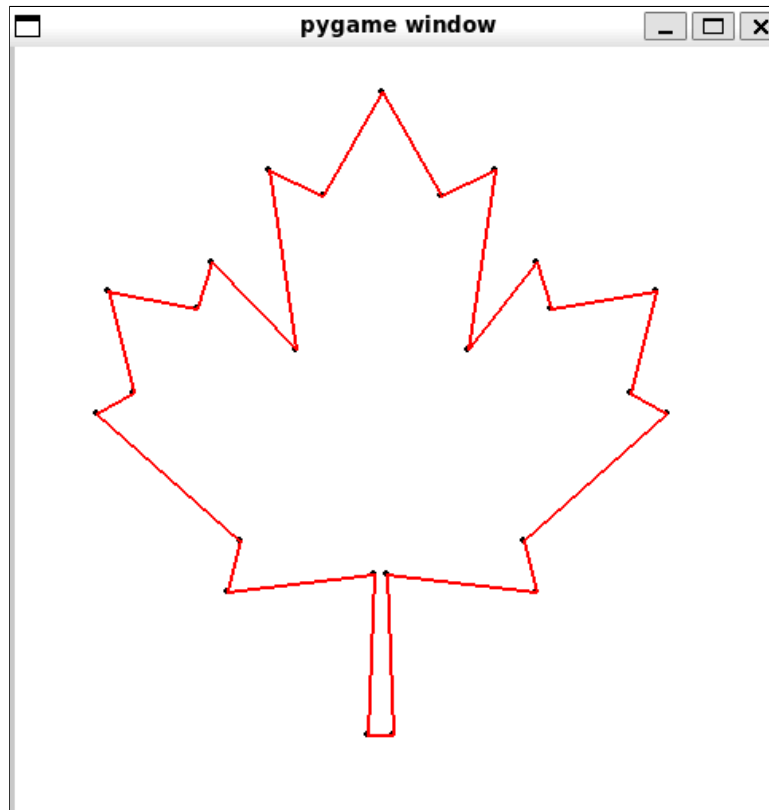
72. [ferry_solution.html](#) [ferry_video](#)

73. [morse.tc](#), [demorse.tc](#), [morse.py](#), [morse.to.letters.qr.2.html](#)

The code below supports a Windows dependent way to compare a local and a remote file

74. [url.1.tc](#), [urldownloadpi.c](#), [urldownload.c](#)

Here's another way you can download a remote file [url.9.10.21.py](#)



75. [connect_the_dots.py](#)

76. Three quines [SELFGEN.BAS](#) [SELFGEN.MSE](#) [selfgen.py](#)

http://primepuzzle.com/tunxis/3-bed_garden.html

77. [Ruth-Aaron pairs in BASIC](#), [Ruth-Aaron pairs in C](#), [Ruth-Aaron pairs in tinyC](#)



78. [Amicable numbers in tinyC](#), [Amicable numbers in C](#)

79. [gennorm.sample.means.c](#) [christian.tc means.txt](#)
<https://statscharts.com/bar/histogram?status=edit>

[weblite.try.c](#), [weblite.html](#)

Click Euler's identity, below, for its proof

80.

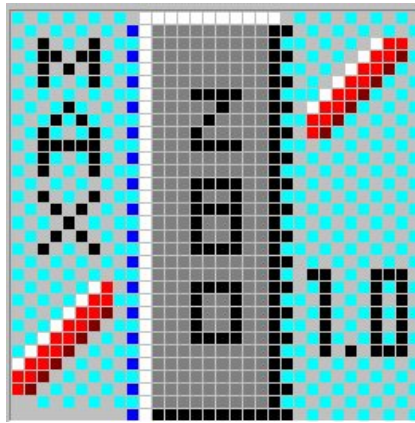
$$e^{i\pi} + 1 = 0$$

Infix to Postfix translator and Proposition evaluator

81. [in2po.c](#), [proposition.c](#), [!jtc post](#), [propositional.logic.html](#)

[Remote Desktop](#)

[dosbox](#)



[maxz80](#)

Where it all began ...

81.1 [altair.html](#)

[dir.txt](#)

82. [pnut.1.time.jslinux.c](#) [pnt.htm](#)

83. [ANIMALS.BAS](#) [animals.c](#) [animalgame.c](#) [MightyPork](#) [Animal Game](#)

```

Is it cat?
[Y/N]: n

*** You win! ***

What animal is it?
[IN]: fox

Animal learned: fox

What question can help me tell apart cat and fox?
[IN]: What is often domesticated?

What would be the answer for cat?
[Y/N]: y
INFO: Saving file.

----- GAME END -----

Do you want to play again?
[Y/N]: n
INFO: Saving file.
[tinyC@localhost animals-game-master]$ cat new.dat
0 Q (6,4): Does it eat mice?
4 Q (3,1): Is it disgusting?
6 Q (2,5): What is often domesticated?
2 A: cat
1 A: dog
3 A: slug
5 A: fox
[tinyC@localhost animals-game-master]$
[tinyC@localhost animals-game-master]$
  
```

[animals.dat](#)

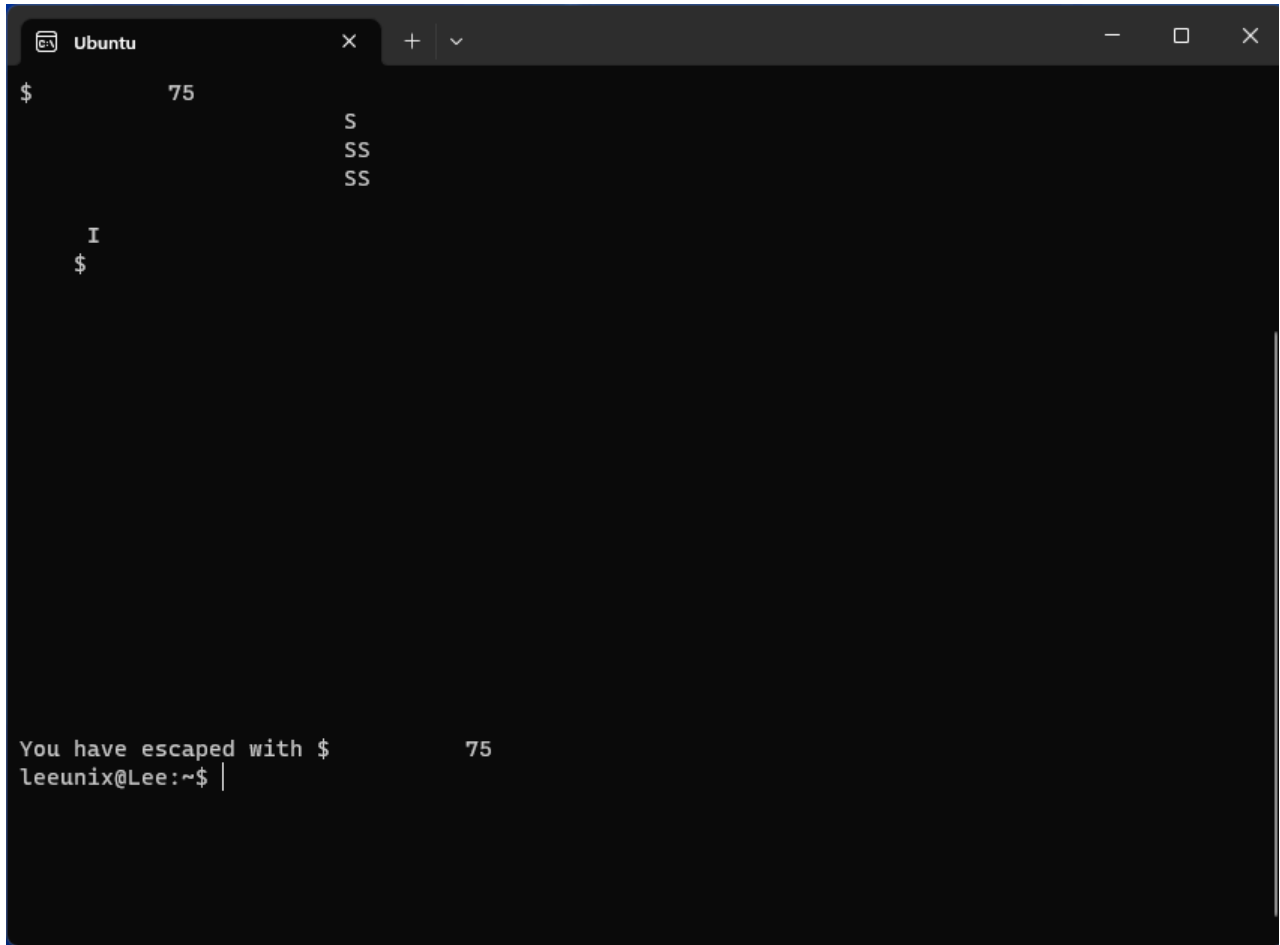
84. [vinod.pillai.c](#) (example of add, delete, modify etc. Employee "database")

85. [ELIZA.BAS](#)

86. [easter.tc](#)

[COPYTRY.ASM](#)

87. [SNAKE.PAS](#) [snake.aaron.2.c](#) [SnakePas.c](#)



```
Ubuntu
$      75
      S
      SS
      SS
      I
      $

You have escaped with $      75
leeunix@Lee:~$ |
```

88. [CHICKEN.PAS](#)

89. [CPMDIR.PAS](#)

90. [TCAP24.BAS](#)



91. [ASCII.MSE](#) [Z80.MSE](#), [z80.mp4](#)

[MULTSEQ.TC](#), [multseq.c](#), [multseq.html](#)

92. [RYEMASH.BAS](#), [ryemash.txt](#), [fortran_coloring_book.html](#)

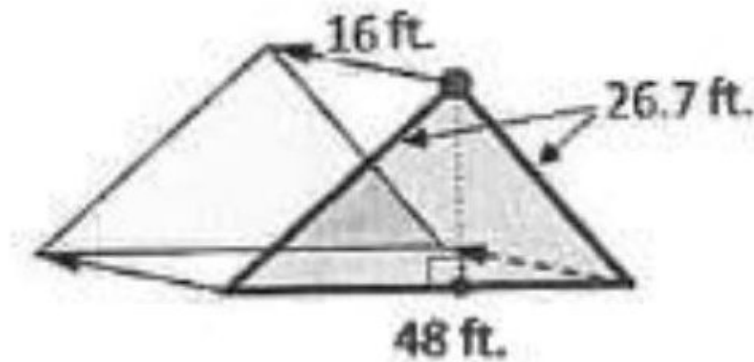
[PILOT/80](#), [VANDC.PIL](#), [PILOT80.DOC](#), [waduzitdo.html](#) [Rob Linwood's RPilot](#),
[documentation](#), [guess1.p](#), [menu.p](#)

[JSLinux](#)

For the above link, login with vflogin tinyC, password is tiny-C You will find a collection of C programs that cover some of the basics here. Also, in the rpilot directory there are several example programs. The software in the next line is also in JSLinux. It's in the directory source/tiny-c-master/Projects/Project_millipede/

93. [millipede.html](#), [millie.c](#), [millie.tc](#), [millipede_millie.txt](#), [chomsky.html](#)

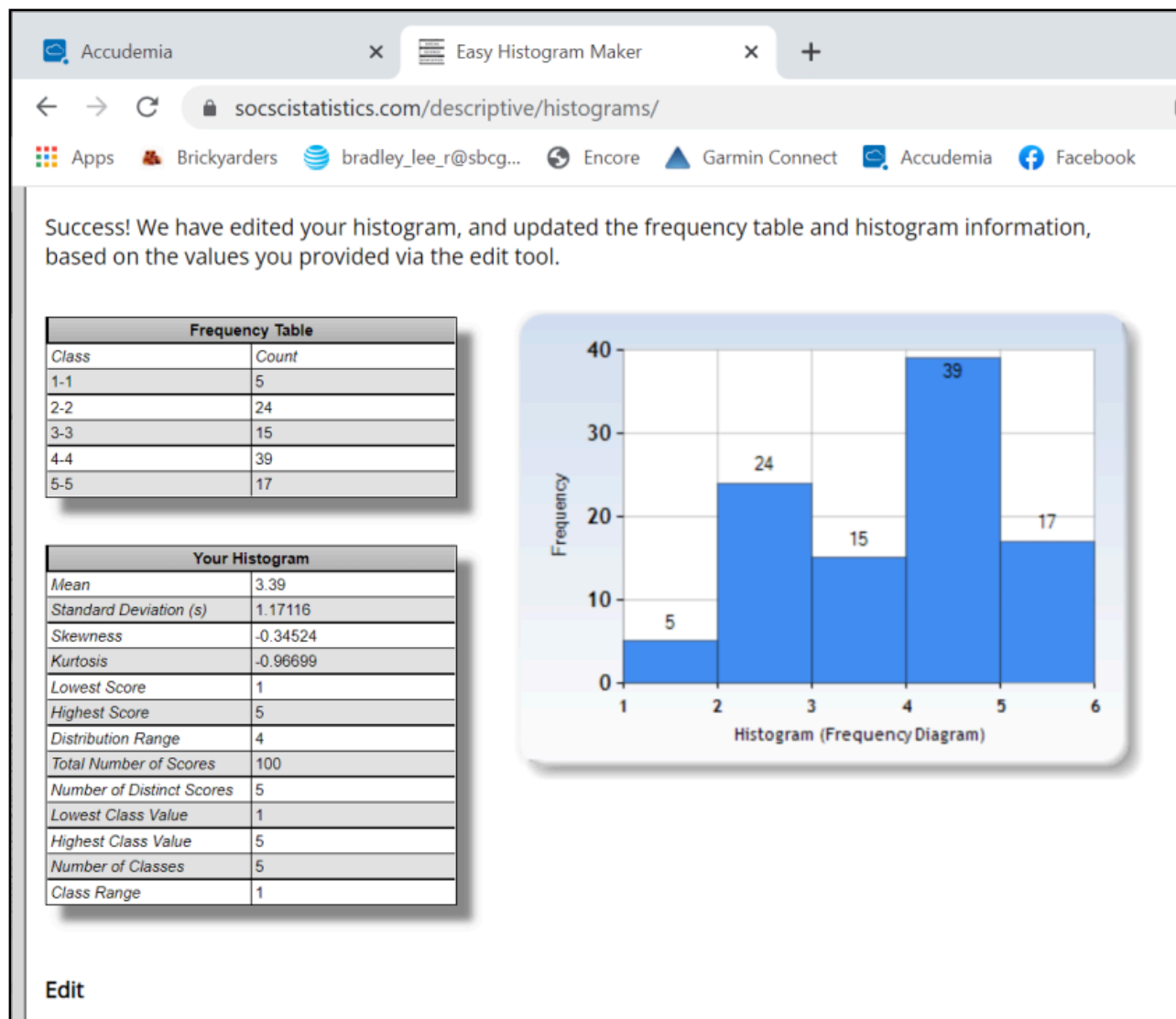
94. [pentence.tc.jslinux.txt](#), [pentence.tc.jslinux.txt.out](#), [pentence.1.py](#)



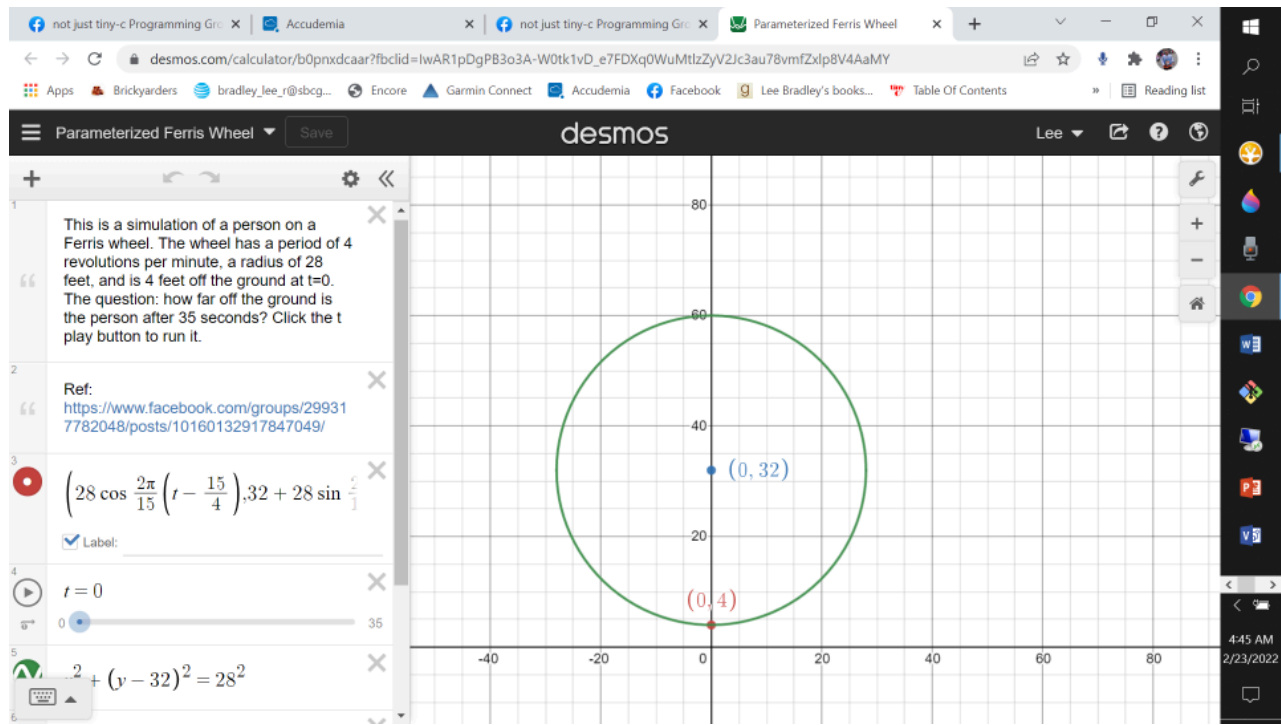
95. [triangular.prism.tc](#)

96. [Two Trains and a Fly](#)

97. [hazel.tc](#)

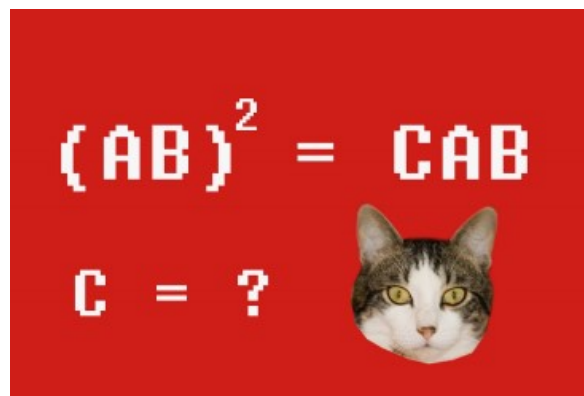


98. [Ferris Wheel](#)



99. pangram.4.1.tc, <https://ideone.com/roz1Wc>, pangram.5.tc, pangram.pl

Finding the equation of a line tangent to a curve using implicit differentiation <https://www.desmos.com/calculator/hfsbqkjpau>



100. Cryptarithms (<http://www.cryptarithms.com/>) math.c, laz.c
http://www.trumancollins.net/truman/alphamet/alpha_solve.shtml



101. despooner.1.tc

102. caesar01.c Why did Caesar cross the Rubicon? Gb trg gb gur bgure fvqr.

```
november.he.net - PuTTY
primepzl@november:~$ alias
alias rot13='tr '\''A-Za-z'\'' '\''N-ZA-Mn-za-m'\''
primepzl@november:~$ echo Gb trg gb gur bgure fvqr | rot13
To get to the other side
primepzl@november:~$
```

103. [greet05.c](#), [.bash_profile](#), [pithy05.c](#), [pithy.txt](#)



<https://mutts.com/products/strip-052922>

104. [dandy.html](#), [dandelion.4.16.22.c](#), [dandelion.1.c](#)
[!jtc.tc](#), [!jtc.html](#)

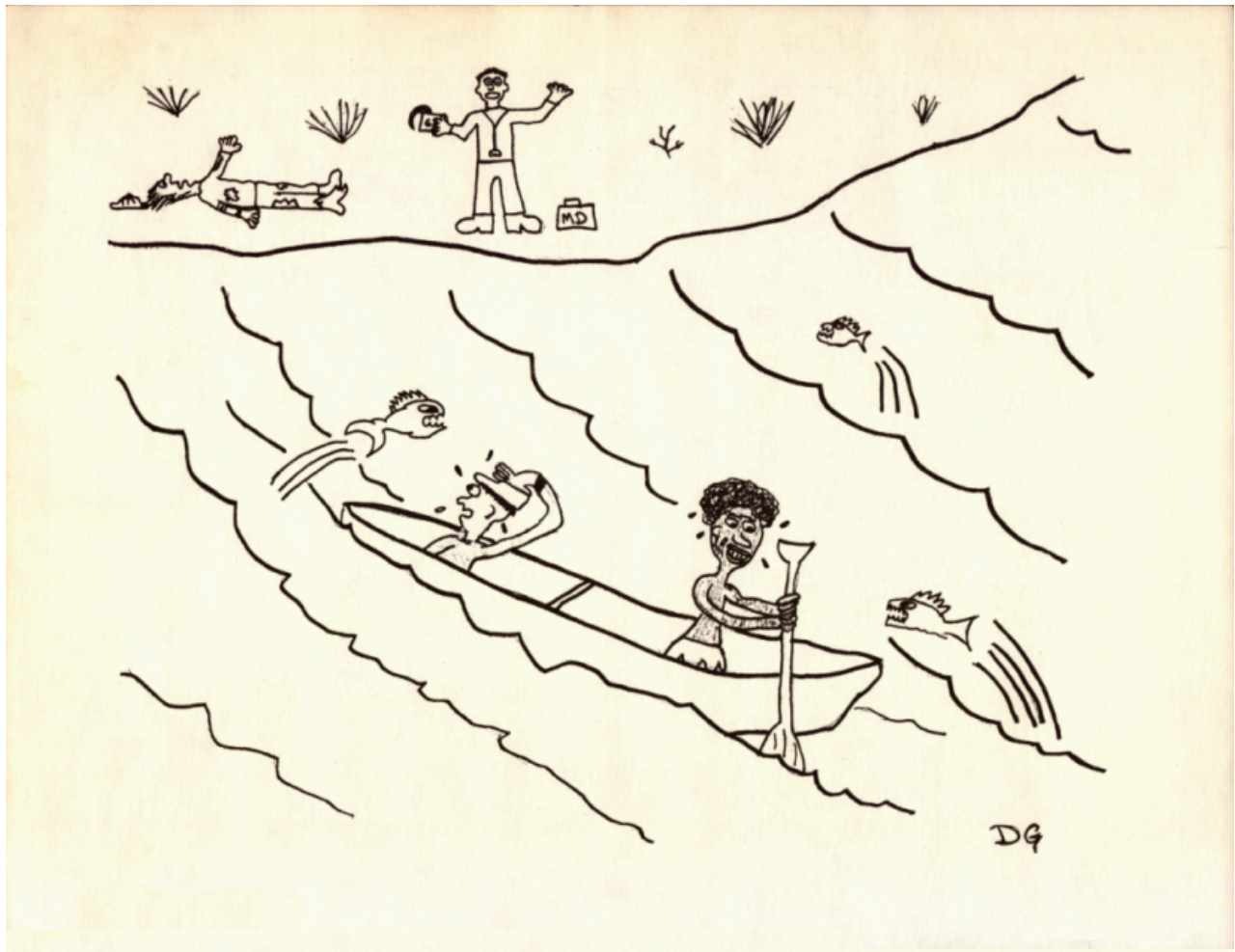
105. [june.22.c](#), [june.22.data.c](#) [june.22b.c](#), [june.22c.c](#)

```
Command Shell
move 134.
Canoe has 78 yards to go, and is 25% full
A piranha fish has jumped into the boat. He is swimming
around. He is looking at the toe of the cannibal.
The cannibal has speared the fish.
Unfortunately he made a hole in the
boat, increasing its sink rate 10%.
Canoe has 56 yards to go, and is 52% full
Canoe has 34 yards to go, and is 79% full
The boat is swamped ...
CAPSIZE!! Everybody swim FAST!! The fish are coming ..
BYTE!! BYTE!! Player 1 fortunately escapes with minor wounds.
BYTE!! BYTE!! Player 3 major wounds acquired.
BYTE!! BYTE!! Player 4 fortunately escapes with minor wounds.
trip to far shore is complete.
  1 attended by nurse.
  3 is much worse, in fact dead.
  4 attended by nurse.
  7 is much worse

near shore                                far shore

                                         1 cannibal minor att
                                         2 cannibal dead
                                         3 hunter dead
                                         4 hunter minor att
                                         5 doctor dead
                                         6 nurse
                                         7 missionary major att
                                         8 missionary minor att
                                         9 missionary minor att
                                         canoe

Your score is 670
done
C:\Users\00076194\OneDrive - CSCU>
```



pf.tc, pf.html

106. therefore.tc

107. minarr.tc, minarr.c, minarr.bas

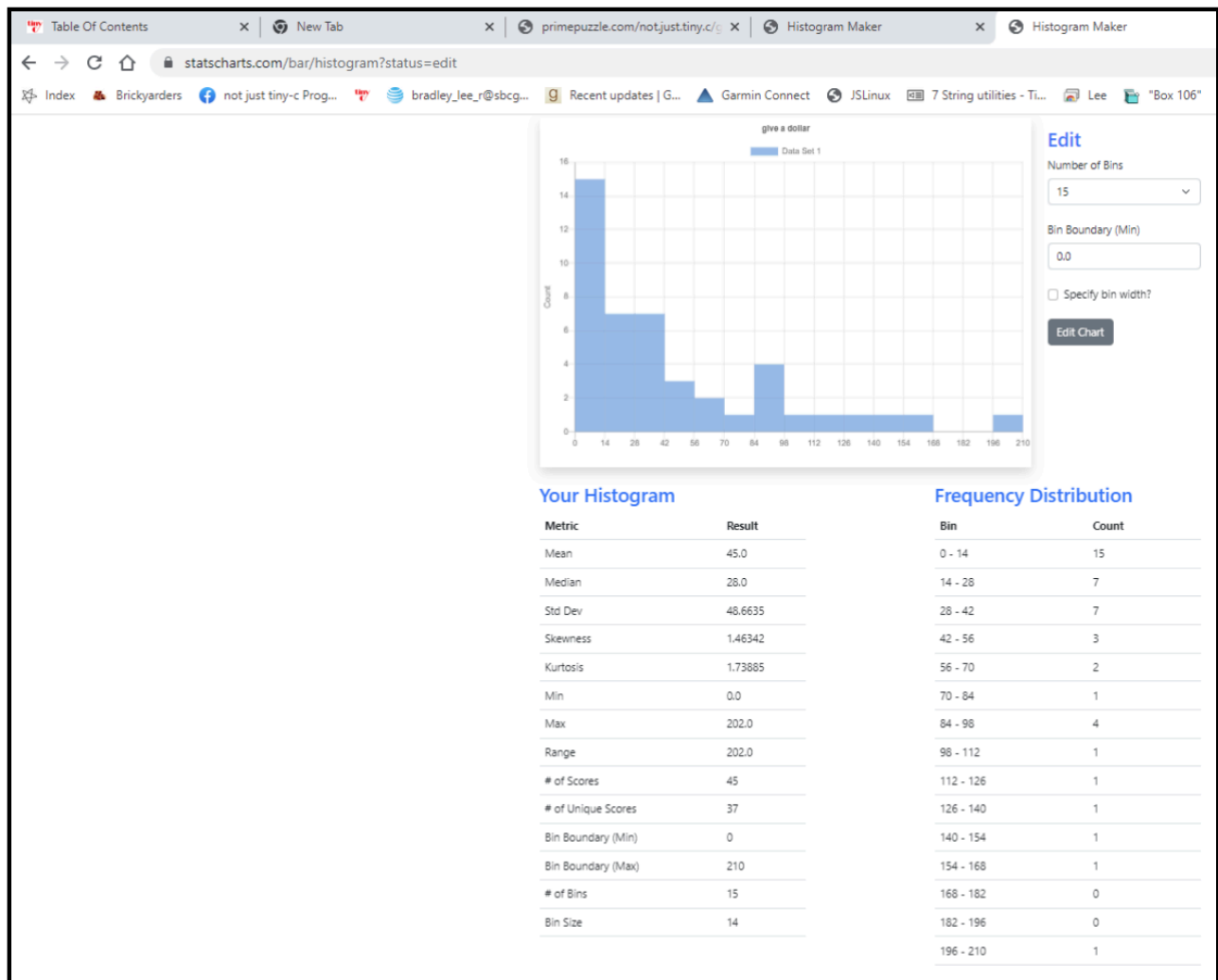
<http://primepuzzle.com/ebc/ebc-3/ASCII.ASC>

[FizzBuzz](#)

108. <http://primepuzzle.com/poe/poe-4-90/poe-4-90.txt>, [BUZZ.BAS](#)

109. give.a.dollar.try.2.tc

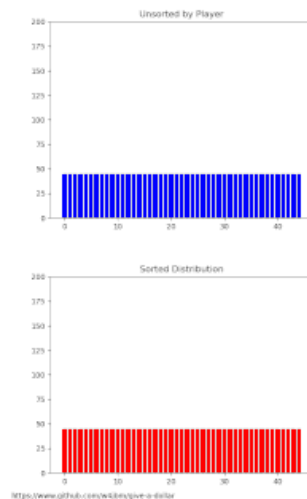
<https://statscharts.com/bar/histogram>



[give.a.dollar.art.html](https://www.give.a.dollar.art.html)

<https://www.rapidtables.com/tools/bar-graph.html>

[give a dollar in Julia by Aaron West](#) [Jim McClanahan's give a dollar in Python and Julia](#)



114. fri13.tc/nextfri.c

115. resistor.2.3d.c

```
november.he.net - PuTTY
resistor.2.3d.c - ceb/lrb
```

band1
1st
digit

band2
2nd
digit

multiplier

resistance
tolerance

COLOR	DIGIT	COLOR	DIGIT	COLOR	MULTIPLIER	COLOR	TOLERANCE
BLACK	0	BLACK	0	BLACK	1	SILVER	+ - 10%
BROWN	1	BROWN	1	BROWN	10	GOLD	+ - 5%
RED	2	RED	2	RED	100	BROWN	+ - 1%
ORANGE	3	ORANGE	3	ORANGE	1,000	RED	+ - 2%
YELLOW	4	YELLOW	4	YELLOW	10,000	ORANGE	+ - 3%
GREEN	5	GREEN	5	GREEN	100,000	GREEN	+ - 0.5%
BLUE	6	BLUE	6	BLUE	1,000,000	BLUE	+ - 0.25%
VIOLET	7	VIOLET	7	SILVER	0.01	VIOLET	+ - 0.1%
GREY	8	GREY	8	GOLD	0.1		
WHITE	9	WHITE	9				

```
Enter band 1 (0 thru 9) : █
```



```
november.he.net - PuTTY
login as: primepzl
primepzl@november.he.net's password:
You have new mail.
Last login: Sat Apr 29 02:47:43 2023 from 32.218.18.110
Greetings, primepzl!
Today is Saturday, April 29, 2023
It is 02:34:44 PM
The moon is waxing gibbous
primepzl@november:~/public_html/not.just.tiny.c$ ./tc deathrow.101b.tc
*** TINY-C VERSION 1.0, COPYRIGHT 1977, T A GIBSON ***
      This C version copyright 2017, T A Gibson

deathrow.101b.tc - lrb - 4/29/23

How many simulations do you want (e.g. 1000) : 10

Start time : 2023-04-29 14:35:05
  1. 2. 3* 4. 5. 6. 7. 8. 9. 10*
Stop time : 2023-04-29 14:35:17

runtime: 0 minutes 12 seconds

inmates saved : 2 inmates died : 8
done
primepzl@november:~/public_html/not.just.tiny.c$ █
```

116. [deathrow.101b.tc rand.c](#)

[secondchance.2.11.23.2.tc](#)

[scramble.2.10.23.c](#)

[experiments.1.4.c](#)

```
leeunix@Lee: ~  
4 -rw-r--r-- 1 primepzl users 1060 Jan 30 02:16 secondchance.tc  
4 -rw-r--r-- 1 primepzl users 1132 Jan 30 06:27 experiments.1.4.c  
12 -rwxr-xr-x 1 primepzl users 8704 Jan 30 06:49 experiments.1.4  
4 -rw-r--r-- 1 primepzl users 300 Jan 30 14:40 scramble.txt  
4 -rw-r--r-- 1 primepzl users 499 Jan 30 14:43 rand.out  
4 -rw-r--r-- 1 primepzl users 425 Jan 31 07:37 yourcolor.c  
12 -rwxr-xr-x 1 primepzl users 8448 Jan 31 07:39 yourcolor  
40 drwxr-xr-x 5 primepzl users 36864 Jan 31 07:40 .  
primepzl@november:~/public_html/not.just.tiny.c$ nano yourcolor.c  
primepzl@november:~/public_html/not.just.tiny.c$ gcc yourcolor.c -o yourcolor  
primepzl@november:~/public_html/not.just.tiny.c$ ./yourcolor  
  
 1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16  
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32  
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48  
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64  
65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80  
81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96  
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112  
113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128  
129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144  
145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160  
161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176  
177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192  
193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208  
209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224  
225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240  
241 242 243 244 245 246 247 248 249 250 251 252 253 254 255  
  
primepzl@november:~/public_html/not.just.tiny.c$ |
```

[yourcolor.c](#)

[mycolor.2.2.23.try.c](#)

[your.tc](#)



117. <http://primepuzzle.com/runlog/february.24.html>

<http://primepuzzle.com/lee-bradley/mini.challenges.html>

[chapter.8.c](#) [library.h](#) [library.c](#) [pace.txt](#)

118. [dan.gookin.2.11.23.html](#)

[dice.py](#)

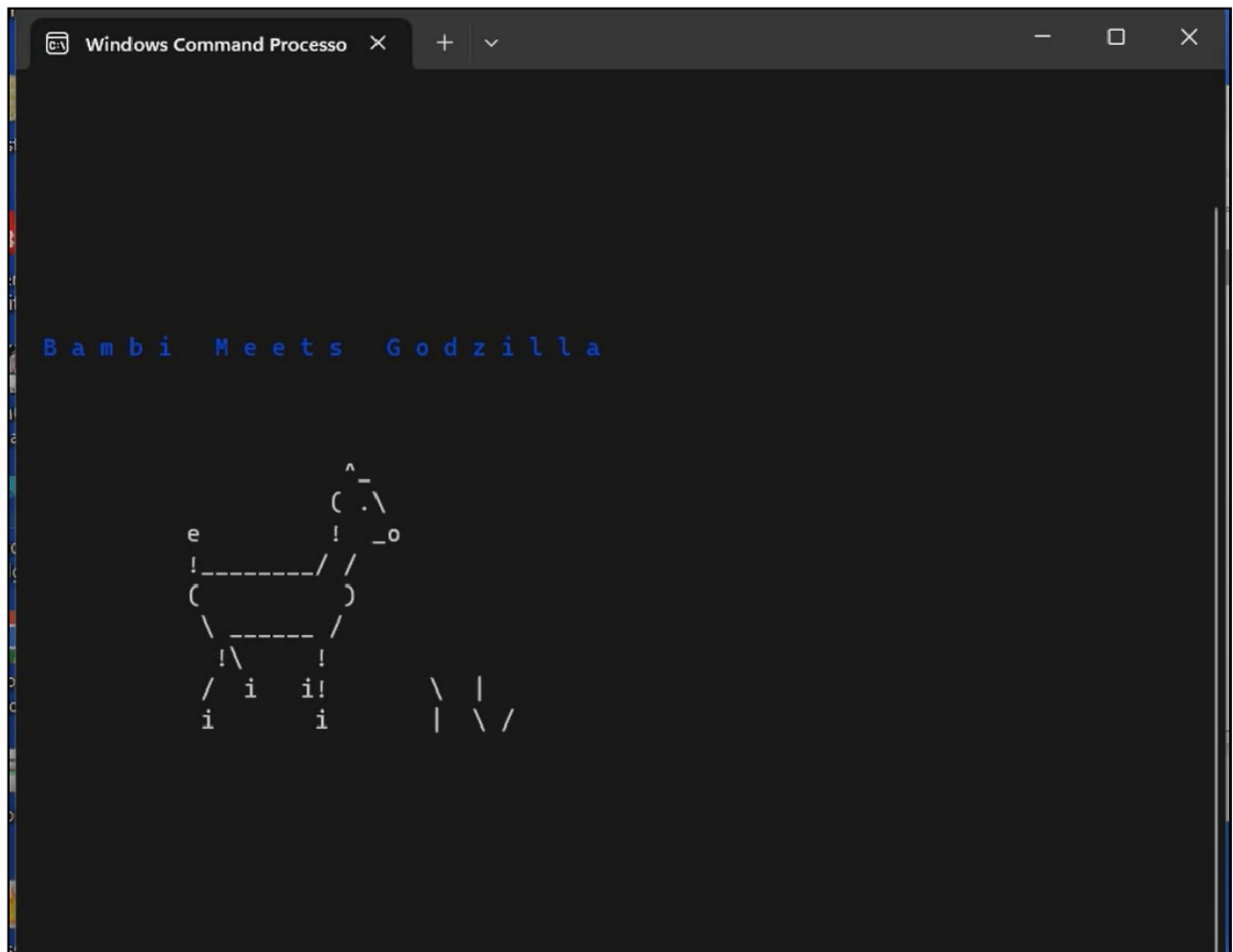
119. [calculator.2.1.c](#)

120. apr.10.23.5.6.23.tc

121. hexencode.html

122. [skier.py](#) [skier.mp4](#)





123. bambi.no.plugin.tc, [BAMBI.DAT](#), [GODZILLA.DAT](#)

[bambi.bat](#)

[bambi](#)

[bambi.mp4](#)

124. [flateval.c](#) - an expression evaluator

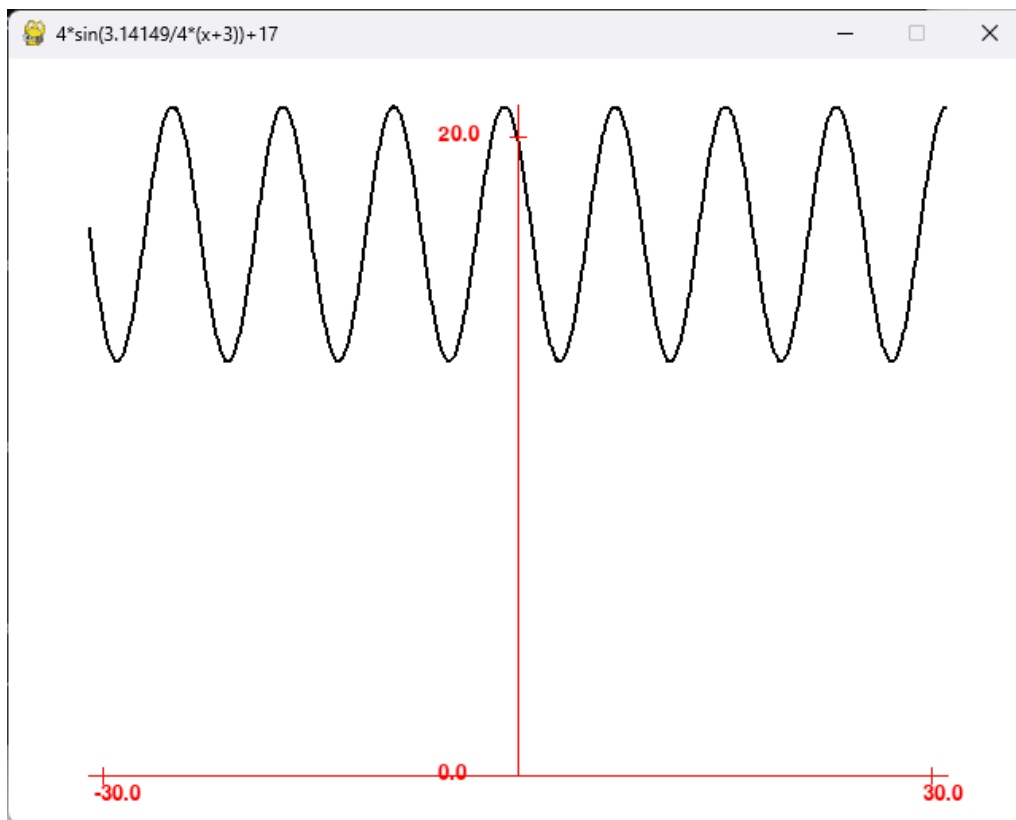
[flateval.exe](#) - Windows executable

[flateval](#) - Linux executable

[24.07.2023_08.55.52_REC.mp4](#) - flateval video

125. [hangman.py](#)

126. [pypong.zip](#), [Listing_19-5.py](#)



127. [find_sine_try.simple_plotter.c](#)

128. <http://primepuzzle.com/linux/ECHO.BAS>,
<http://primepuzzle.com/linux/GOTCHA.MAC>,
<http://primepuzzle.com/linux/TEST.BAS>

<http://primepuzzle.com/linux/MOTYLNEW.BAS>,
<http://primepuzzle.com/linux/CMD.MAC>



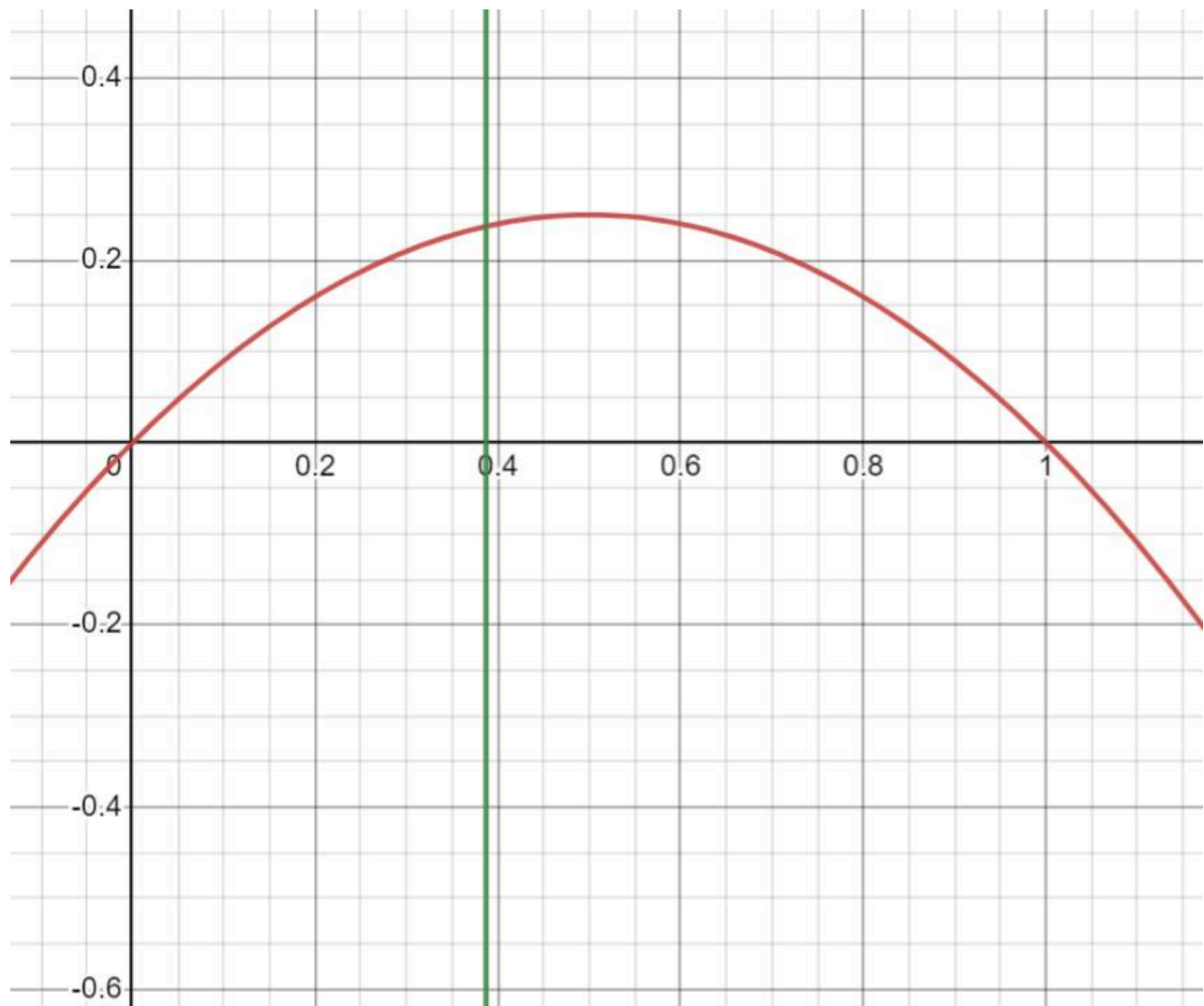
<http://primepuzzle.com/not.just.tiny.c/pagoda.rle>,
<https://qomph.com/lee/csrle/www/csrle.html>,
<http://primepuzzle.com/not.just.tiny.c/rle.c>

spoiler alert: you need calculus to do this.

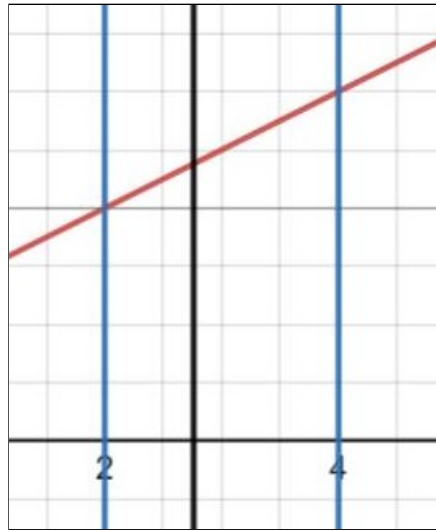
determine the x coordinate such that the area under the red graph to the left of the green line = 1/2 the area under the red graph to the right

of the green line. The red graph's function is $y = -x(x-1)$.

You may use a calculator. Your answer should be accurate to 3 decimal di



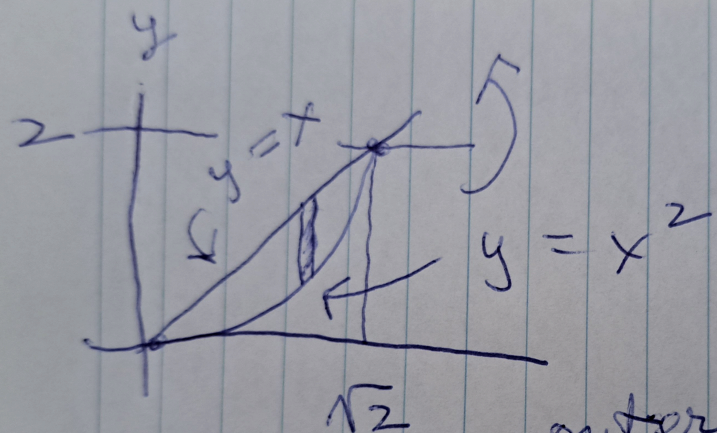
Determine the value of the x-coordinate of the vertical black line that splits the trapezoidal area defined by x-axis, the red line whose equation is $y = (1/2)x + 1$ and the two blue lines at $x=2$ and $x=4$ into two trapezoids such that the area of the left trapezoid = $1/2$ the area of the right trapezoid. Show a 3-decimal digit accuracy in the answer.



<http://primepuzzle.com/not.just.tiny.c/nic.1.jpg>,
<http://primepuzzle.com/not.just.tiny.c/nic.2.jpg>

129. <http://primepuzzle.com/not.just.tiny.c/JIM~2.BAS>,
<http://primepuzzle.com/not.just.tiny.c/jim.try.c>

Here's a problem I recently worked on w/ a calculus student. Rotate the area defined by the two curves about the line $y=2$ and figure out the volume of the object. I find visualizing such things difficult. The idea here is to see the problem as summing a bunch of hollow cylinders (or "washers"). The volume of a cylinder is the area of the base times the height.



$$\text{outer } r = 2 - x^2$$

$$\text{inner } r = 2 - x$$

$$Vol. = \int_0^{\sqrt{2}} \pi((2 - x^2)^2 - (2 - x)^2) dx$$

$$= \pi \int_0^{\sqrt{2}} (4 - 4x^2 + x^4 - (4 - 4x + x^2)) dx$$

$$= \pi \int_0^{\sqrt{2}} (-5x^2 + x^4 + 4x) dx$$

$$= \pi \left(-\frac{5}{3}x^3 + \frac{x^5}{5} + 2x^2 \right) \Big|_0^{\sqrt{2}}$$

$$= \pi \left(\frac{5}{3} 2\sqrt{2} + \frac{4\sqrt{2}}{5} + 4 \right)$$

$$= \pi \left(\frac{-50 + 12\sqrt{2}}{15} + 4 \right)$$

$$\approx \pi \left(\frac{-38\sqrt{2} + 60}{15} \right)$$

7:46 57%

desmos.com/calculator/8sulbwb2kq

1 $\pi \int_0^{\sqrt{2}} ((2-x^2)^2 - (2-x)^2) dx$

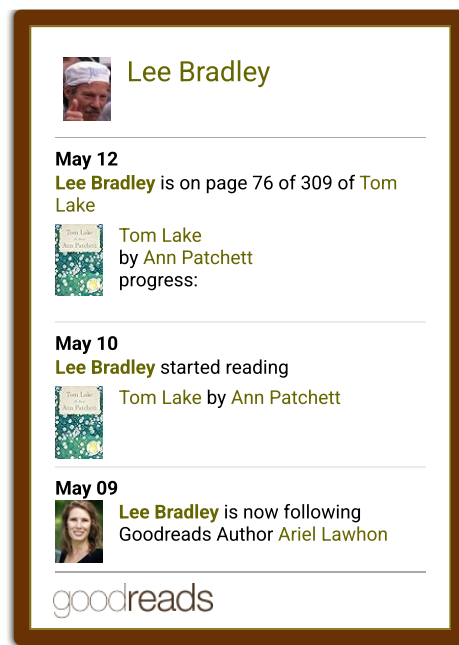
= 1.31106717102

2 $\pi \cdot \frac{(-38\sqrt{2} + 60)}{15}$

= 1.31106717102

find a function whose derivative is equal to its inverse

<https://www.desmos.com/calculator/0tsdaefejn>



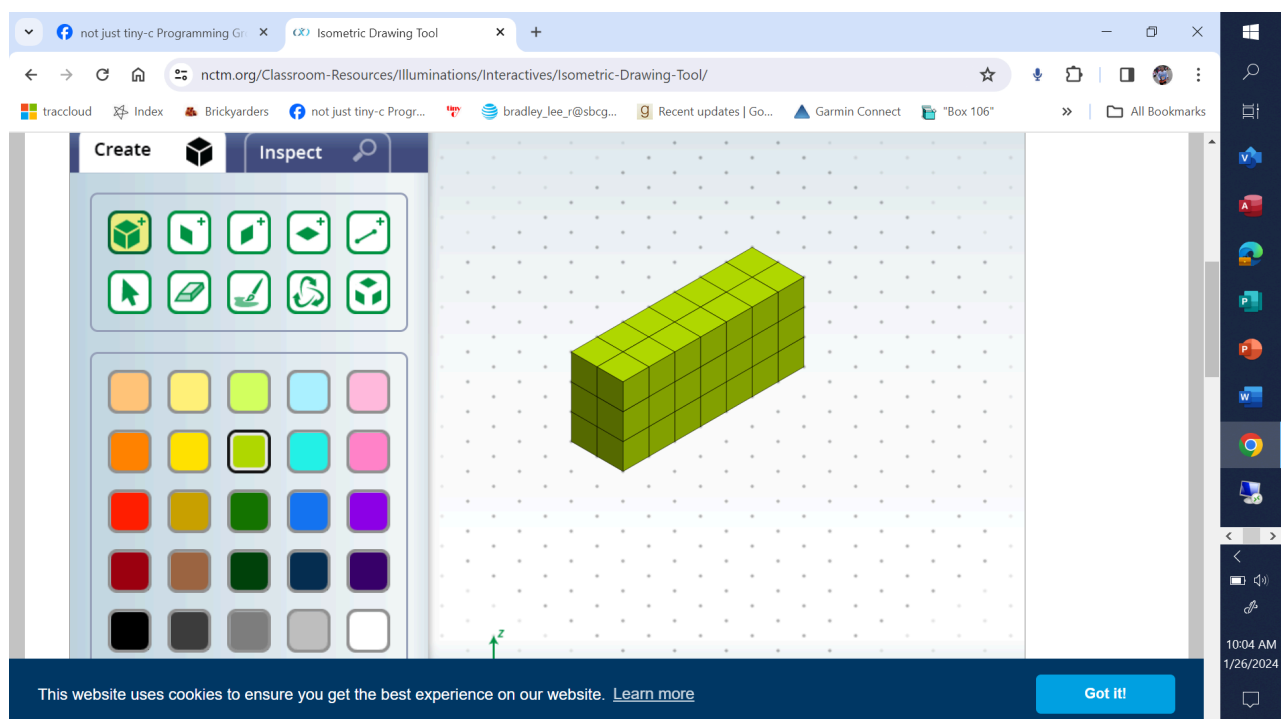
A program to compute the dollar value of the pennies that go from the top of the Empire State Building to the top of the spire.

130. pennies.c

How to tile a square with 5 rectangles with edges in [1,10]

131. tile.html

What is the height (in cm) of a solid rectangular cube with base having a perimeter of 18 cm and which is made up of 42 square unit cubes (i.e. $1 \times 1 \times 1 \text{ cm}^3$)?



The "volume" of the cube = $42 = 2 \times 7 \times 3$. If w, l, h stand for width, length, height, we get $\text{volume} = w \times l \times h$ so $\text{volume} / (w \times l) = h$. The perimeter is $2 \times (w + l) = 18$ so $w + l = 9$ or $w = 9 - l$. $\text{volume} / ((9 - l) \times l) = 2 \times 7 \times 3 / ((9 - l) \times l)$. The only way the right hand side will be a whole number is if $l = 2$ which means $h = 3$.



How many cards would you have to draw to get at least 1 card from each suit (Club, Diamond, Heart, Spade) and at least 1 card from each rank (Ace, 2, 3, 4, ... 10, Jack, Queen, King).

132. [cards.1.c](#) [cards.py](#) [cards.cpp](#) [card.h](#) [deck.h](#)
[replit C](#) [replit Python](#) [replit C++](#)

51. Let the distance between the runner and the friend be ℓ . Then by the Law of Cosines,

$$\ell^2 = 200^2 + 100^2 - 2 \cdot 200 \cdot 100 \cdot \cos \theta = 50,000 - 40,000 \cos \theta \quad (*)$$

Differentiating implicitly with respect to t , we obtain $2\ell \frac{d\ell}{dt} = -40,000(-\sin \theta) \frac{d\theta}{dt}$. Now if D is the

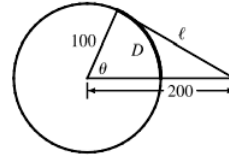
distance run when the angle is θ radians, then by the formula for the length of an arc

on a circle, $s = r\theta$, we have $D = 100\theta$, so $\theta = \frac{1}{100}D \Rightarrow \frac{d\theta}{dt} = \frac{1}{100} \frac{dD}{dt} = \frac{7}{100}$. To substitute into the expression for

$\frac{d\ell}{dt}$, we must know $\sin \theta$ at the time when $\ell = 200$, which we find from (*): $200^2 = 50,000 - 40,000 \cos \theta \Leftrightarrow$

$$\cos \theta = \frac{1}{4} \Rightarrow \sin \theta = \sqrt{1 - \left(\frac{1}{4}\right)^2} = \frac{\sqrt{15}}{4}. \text{ Substituting, we get } 2(200) \frac{d\ell}{dt} = 40,000 \frac{\sqrt{15}}{4} \left(\frac{7}{100}\right) \Rightarrow$$

$d\ell/dt = \frac{7\sqrt{15}}{4} \approx 6.78 \text{ m/s}$. Whether the distance between them is increasing or decreasing depends on the direction in which the runner is running.



A runner sprints around a circular track of radius 100 m at a constant speed of 7 m/s. The runner s friend is standing at a distance 200 m from the center of the track. How fast is the distance between the friends changing when the distance between them is 200 m?

<https://www.desmos.com/calculator/cykbdtzfe0>

A difficult integral

133. <https://www.desmos.com/calculator/6yytgtodu3>

Venn diagram approach to solving question #16 on a Math Contest

134. [venn.html](#)

135. [readdir_new.c](#), [dir_try.tc](#)