I
t has been a year since I specified the size of the backlogs for the various kinds of problems that are printed. Cure-
rently, I have a large queue of regular problems and speed
problems. Bridge and other game related problems, however,
are in short supply.
You may recall that last issue I waxed ineloquently about the
spectacular autumn we had in the northeast due in part to the
lack of any significant storm. Well, there is a local committee
forming to convince me never to do that again. Very soon after
the column was written we had a modest snowstorm of over
8 inches that closed NYU, the New York City public schools,
and much else. Today we are just finishing with the “Blizzard
of 2017”, a foot where I live and even more a little north and
west. March has certainly come in like a lion and now I must
bow out like a lamb.

Problems
M/J 1. Larry Kells must have trouble setting contracts even
when he has good hands. Kells wonders what is the most
(high card) points a partnership can have and still be unable
to beat 7NT with best play on both sides. How about 6NT, 3NT, and 1NT?

M/J 2. David Dewan proposed the following cryptarithmetic
problem as a follow-up to his J/F speed problem.
Assign a distinct digit to each letter in the following formula
and produce a valid numerical equation.

HA** + NEW = YEAR

M/J 3. A two part problem from Ermanno Signorelli
Consider an equilateral triangle whose sides are three units
in length (see Fig. 1). Mark off points on all three sides that are
one unit apart. Construct line segments parallel to the base
between the points on the other two sides. Create points one
unit apart along these lines parallel to the base. (There will
now be ten points on the plan of this triangle.) Construct line
segments between all the points with every other point. Find
all the equilateral triangles that result whose sides are not an integer
multiple of the unit length. What is the length of their
sides? Hint: there are only two such triangles.

Now consider an equilateral triangle whose sides are four
units in length (see Fig. 2). Again mark off points on all three
sides and on the internal lines that are one unit apart as was
done above. (There will then be fifteen points on the plan of
this triangle as shown in the diagram below.) Construct line
segments between each pair of points. Find all the equilateral
triangles that result whose sides are not an integer multiple
of the unit length. What is the length of their sides and how
many are there?

Speed Department
A geometry quicky from Sorab Vatcha. A right triangle ABC
with the right angle at A has a perpendicular AD. Relate the
lengths of AD, BD, and CD.

Solutions
J/F 1. Another hexominoes problem from Richard Hess and
Robert Wainwright. You are to design a connected tile so that
5 of them cover at least 93% of the area of the hexomino below.
The tiles must be identical in size and shape and may be turned
over so that some of them are mirror images of the others. They
must not overlap each other or the border of the hexomino.

Joseph Feil gets the same coverage with a slightly less jagged tile.

Ken Rosato tells us to “treat each square of the hexomino
as a 4 by 4 grid of 16 smaller squares. If the new tile contains
18 of these smaller squares, 5 of them would cover 5 * 18 = 90
smaller squares or 90 / 96 = 93.75% of the original hexomino.”

Ken then suggests a stairstep design for the tile. Guy Steele
has the same tile and supplies the lovely grayscale diagram
below. (He also sent a yet more lovely 5-color version that I
know enough not to even ask the editors to print. Instead it is
on the Puzzle Corner web site.)

Marc Strauss uses the following tile having a 45 degree angle
and one side parameterized by x. For suitable values of x, five of
these tiles cover over 96% of the hexomino.

Better Late Than Never
2016 J/JA 1. Robert Wake sent in an alternate solution with an
interesting twist. All the “helpmate” behavior is limited to trick
1. His response is on the Puzzle Corner web site.

Other Responders
Responses have also been received from R. Rumby, P. Cassidy, G.
Cox, P. Davis, E. Friedman, W. Lemnios, Z. Levine, R. Morgen,
S. Shapiro, and R. Wake.

Proposer’s Solution to Speed Problem
AD’ = BD + CD

Send problems, solutions, and comments to Allan Gottlieb, New York
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Corner website at cs.nyu.edu/~gottlieb/pc/