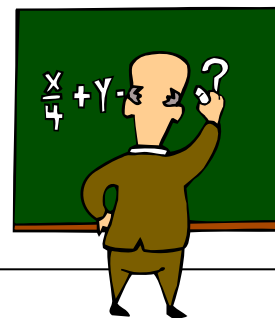


Problem of the Week

November 24 – November 30, 2009



On a square grid, the *corner sum* is the sum of the four numbers in the corners after writing the whole numbers (beginning with 1) in order around the outer squares. The first number may be placed anywhere in the outer squares. A *corner sum* of 30 can be achieved as shown below.

9	10	11	12
8			1
7			2
6	5	4	3

$$9 + 12 + 3 + 6 = 30$$

A *corner sum* of 16:

3	4	5
2		6
1	8	7

$$3 + 5 + 7 + 1 = 16$$

Find a square grid whose *corner sum* is 54.

The first Problem of the Week Pizza Party will be on Friday, December 4 at a time to be announced. The sign-up sheet will be available outside the math office in the basement. All students who have earned the solution of the week are invited, and any boy with 5 entries has also earned an invitation.

Note: This week's problem is due on Monday, November 30th by 8:30 am. The answer to last week's growing polygon problem was 93 sides.

Congratulations to **Philip Bliss** for submitting the solution of the week. His solution is attached to this message and is on display outside of Room 67. Other correct solutions came from **Trey Collins, Chris Russo, Nicholas Mollerus, Arthur Calcagnini, William Burke, Teymour Farman-Farmaian, Finn Carey, Cyrus Farman-Farmaian, and Justin Chiang**. Valiant attempts came from **Tim Brennan, Robert Frank, Daniel Dixon, Julian Anderson, Julian Thesseling, and Luke Marinaro**.

Solution of the Week

Philip Bliss

Problem of the Week

The resulting figure has 93 sides. I first noticed a pattern every time a polygon was added to the caterpillar-like shape made of polygons. I noticed that every time a polygon was added, two sides were taken from it, because those two sides had to connect to two other shapes. The polygons at the end and beginning of the caterpillar shape have one side taken away, because only one other polygon is attached to them.

Sides	side - 1 =	Sides Showing
3	3 - 2 =	2
4	4 - 2 =	2
5	5 - 2 =	3
6	6 - 2 =	4
7	7 - 2 =	5
8	8 - 2 =	6
9	9 - 2 =	7
10	10 - 2 =	8
11	11 - 2 =	9
12	12 - 2 =	10
13	13 - 2 =	11
14	14 - 2 =	12
15	15 - 1 =	+ 14
		<u>93 total sides</u>

