Student Mathematics League - Questions for Week of Oct. 22

Student Name: _____ Math Instructor: _____

CWID#: _____ Phone #: _____

Submit you entries to Bobby Jackson in Alexander 210. **Deadline for submissions is 1 p.m. Friday, October 26**. One randomly selected student from the highest scoring submissions will receive a cash prize of $25. Score will be determined as follows: +2 points for a correct response, -1/2 point for an incorrect response, and 0 points for no response. Clearly circle your answer in each case.

1. Add *this* to *that*, divide by three; the square of *this* of course you'll see. But *that* to *this* is eight to one; so find what *this* is, and you're done.

A. 3 B. 9 C. $\frac{1}{3}$ D. 0 E. two of the preceding

2. Let f be a polynomial function such that, for all real x, $f(x-1) = x^2 - 3x + 5$. Then, for all real x, $f(x+1) =$

A. $x^2 + x + 3$ B. $x^2 - x + 3$ C. $x^2 + x$ D. $x^2 - 3x + 7$ E. none of these

3. Figures 1, 2, and 3 consist of 5, 13, and 25 unit squares, respectively. If the pattern continued, figure 100 would consist of how many unit squares?

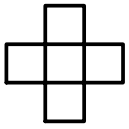

Figure 1

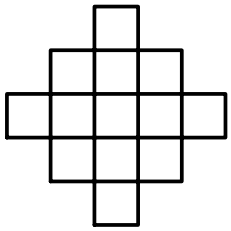

Figure 2

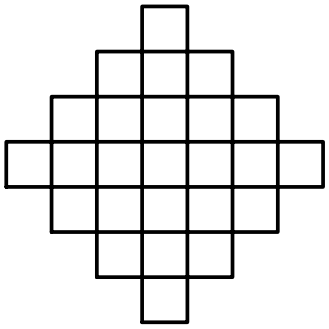

Figure 3

A. 10,401 B. 19,801 C. 20,201 D. 39,801 E. none of these

4. Six cards have one letter printed on each side of the card. The table below shows the letters that are on each card. (For example, the first card has an A on one side and an M on the other.)

A	A	A	A	Y	B
M	T	Y	C	C	T

The six cards are tossed into the air and fall randomly to the ground. What is the probability that the resulting letters can be arranged to spell A M A T Y C?

A. $\frac{1}{64}$ B. $\frac{1}{32}$ C. $\frac{1}{16}$ D. $\frac{1}{8}$ E. none of these

5. How many pairs (r, s) of positive integers satisfy the equation $r^2 - s^2 = 2001$?

A. 0 B. 1 C. 2 D. 3 E. 4