

Math 105 TOPICS IN MATHEMATICS
REGULAR HOMEWORK – I

January 23 (Fri), 2015

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Line #: 52920.

★ **Due date:** Wednesday, January 28th, 2015 .

★ **Your paper will be collected in class. No late homework will be accepted.**
Please see “Rules, Policies and Protocols” p.14 about homework policy.

[I] (10pts) Is each of the following integers prime?

(a) 17. (b) 25. (c) 31. (d) 87. (e) 101.

[II] (9pts) True or false:

(1) There are infinitely many prime numbers.

(2) There are 1000000000000 (one trillion) consecutive positive integers none of which is a prime.

(3) No matter how large a number you choose, there are two primes above that number and whose gap is less than 70000000 (seventy million).

[III] (3pts) Identify the only even prime number.

[IV] (4pts) (1) Who proposed the Riemann Hypothesis?

(2) Has it been solved, as of January 23, 2015? (Answer ‘Yes’ or ‘No’.)

[V] (4pts) Do each of (a) and (b). You can rely on the formula found in “Review of Lectures – II”, page 11, if necessary.

(a) How much does it make if you add up integers between 1 and 23?

(b) How much does it make if you add up integers between 1 and 1000?