Philadelphia University

Department of Basic Sciences

Exam 1 **Number Theory** **13–03–2012**

Solutions must be complete in order to receive full credit.

1. Prove: if $d \mid mn$ and $\gcd(d, m) = 1$ then $d \mid n$.
2. Evaluate $\gcd(1455583, 11477)$ using the Euclidean algorithm.
3. Is the number 293 prime or composite? Use trial division.
4. Count how many divisors of the number 79200.
5. Find all the solutions to the linear congruence $14x \equiv 35 \pmod{91}$.
6. The number 313 is prime. Evaluate 310! % 313.

–Amin Witno

The list of primes below 200.

2	3	5	7	11	13	17	19	23	29
31	37	41	43	47	53	59	61	67	71
73	79	83	89	97	101	103	107	109	113
127	131	137	139	149	151	157	163	167	173
179	181	191	193	197	199				