

PHILADELPHIA UNIVERSITY
DEPARTMENT OF BASIC SCIENCES

Exam 1

Number Theory

14-11-2007

Solutions must be complete in order to receive full credit.

1. Find a and b such that $657a + 306b = \gcd(657, 306)$.
2. Find all the solutions to the linear equation $72x + 56y = 24$.
3. Prove that $n^3 - n$ is divisible by 24 for all odd number n .
4. Determine the number 701 prime or composite.
5. (a) Count how many positive integers divide 12000.
(b) Evaluate $\gcd(12000, 6300)$ by factoring.

-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				