Math 311W

Homework Due Oct. 19, 2012

Do problems

12 & 13 on pp. 76-77

AND

Let $d(n)$ denote the number of divisors of n. For example, $d(6)=4$ because 1, 2, 3, 6 are the divisors of 6.

1. If p is a prime, prove that

$$d(p^\alpha) = \alpha+1$$

2. If p and q are prime, prove that

$$d(p^\alpha q^\beta) = (\alpha+1)(\beta+1)$$

3. Prove that $d(n)$ is odd if and only if n is a perfect square