Quiz # 8 for Dr. Z.'s Number Theory Course for Nov. 14, 2013

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

1. (i) (2 pts.) Define $\sigma_2(n)$ (ii) (2 pts.) State the formula for $\sigma_2(n)$ in terms of the expression of n as a product of prime powers (iii) (2 pts.) Verify it for $n = 15$ by using the definition and the formula

2. (4 pts.) Prove that if p is a prime, and $2^p - 1$ is also a prime, then

$$2^{p-1} \cdot (2^p - 1)$$

is a perfect number.