Math 42-Number Theory
Problem of the Day #5
Due Tuesday, February 15, 2011

1. Compute $\varphi(4)$, $\varphi(6)$, $\varphi(9)$, $\varphi(12)$, $\varphi(18)$, $\varphi(36)$. Is $\varphi(4) \cdot \varphi(3) = \varphi(12)$? Is $\varphi(6) \cdot \varphi(2) = \varphi(12)$? Is $\varphi(6) \cdot \varphi(6) = \varphi(36)$? What about $\varphi(18) \cdot \varphi(2)$ or $\varphi(4) \cdot \varphi(9)$? In general, make a guess about when $\varphi(m) \cdot \varphi(n) = \varphi(n \cdot m)$.