Dr. Z.'s Number Theory Homework assignment 17

1. Spell-out the explanation for the important formula for $\sigma(n)$ for $n = 50$.

2. Spell-out the explanation for the important formula for $\sigma_3(n)$ for $n = 24$.

3. Verify the formulas for $d(n)$, $\sigma_1(n)$, $\sigma_2(n)$ and $\sigma_3(n)$ for for **a.** $n = 10$ **b.** $n = 26$ **c.** $n = 16$

4. Verify the Dirichlet series for $\sigma(n)$ for up to $n = 10$

5. Verify the Dirichlet series for $\sigma_3(n)$ for up to $n = 5$

6.: State the Lambert series for $\sigma_3(n)$ and verify it through $n = 8$

7. (challenge) Using a computer (Maple or otherwise), go towards proving the Riemann Hypothesis by checking the assertion in Robin's Theorem as far as you can.