Let $I = \int_2^\infty \frac{3}{x^5 + x^2 + 1}\, dx$.

1. Show that I converges.

2. Find an upper bound for $I_2 = \int_{10}^\infty \frac{3}{x^5 + x^2 + 1}\, dx$.

3. Approximate $I_1 = \int_2^{10} \frac{3}{x^5 + x^2 + 1}\, dx$ using M_{100}.

   How close is this approximation to I_1?

4. Notice $I = I_1 + I_2$.
   How close is your value for M_{100} to the actual value of I?