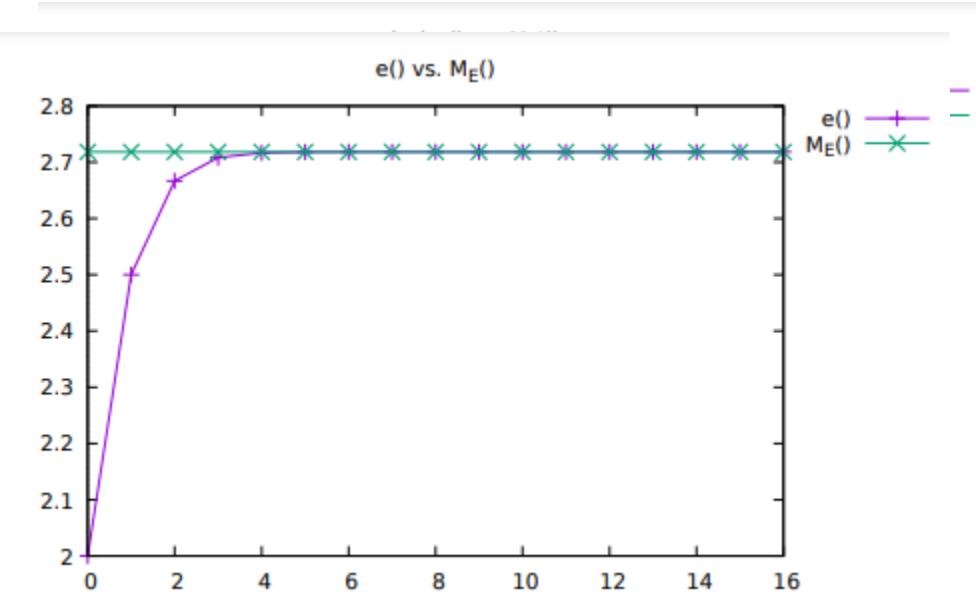
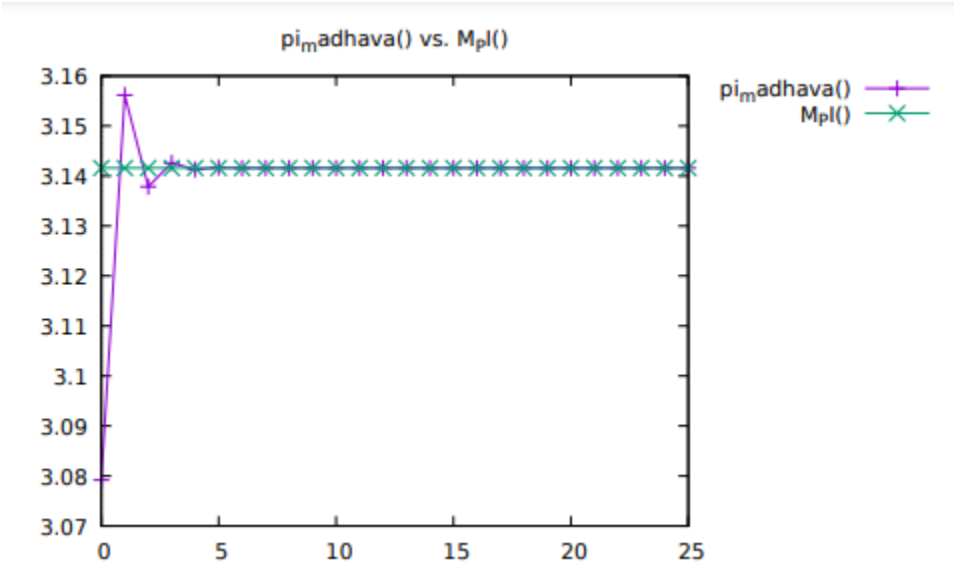
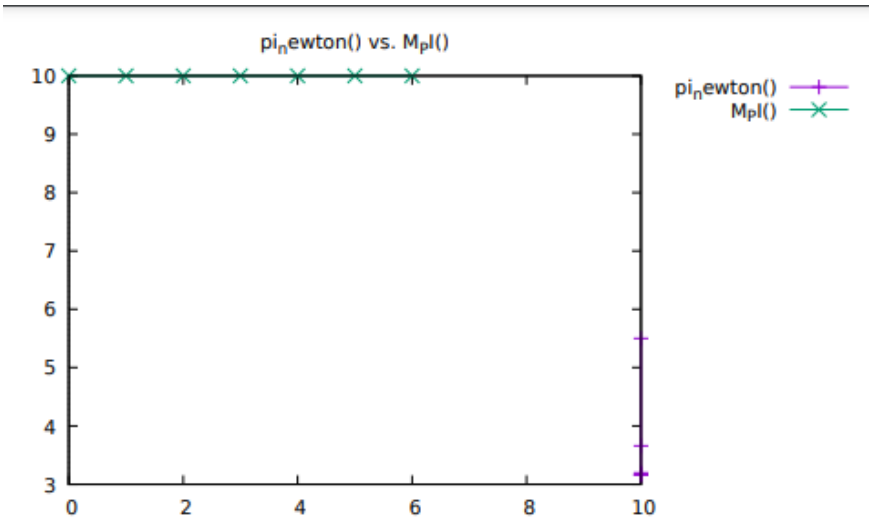
ASGN2 WRITEUP



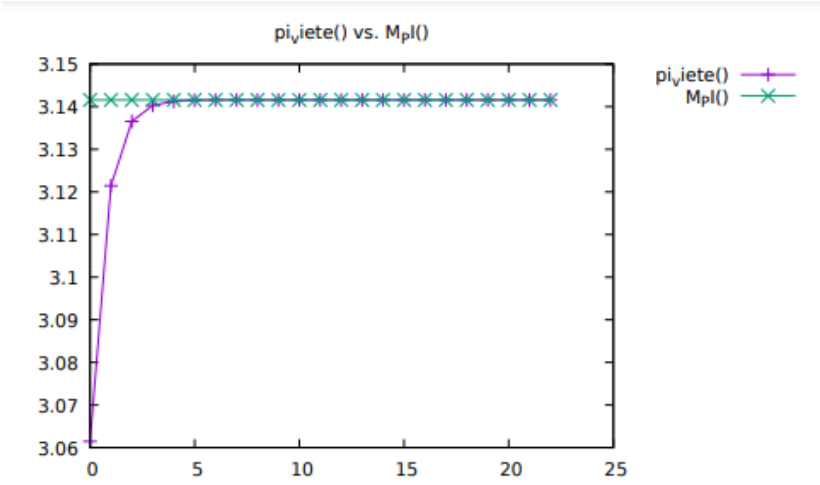
This graph compares the starting terms of e shown in e.c as the purple line and shows how within 4 terms it has started to rapidly converge to M_E. We can calculate e in very few terms with great efficiency.



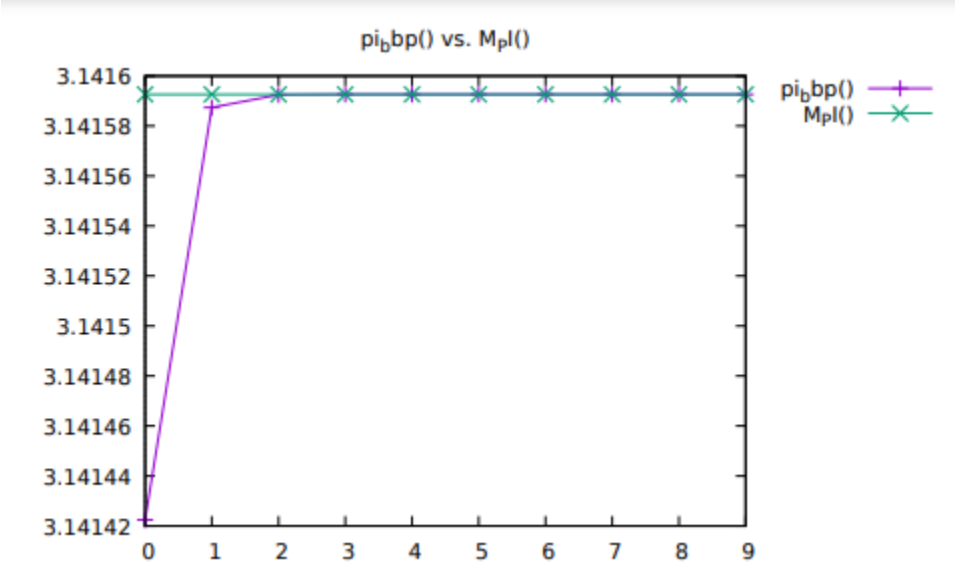
This graph shows madhava.c converging to pi and reveals how the summation of pi oscillates between above and below the M_PI line. Within around 25 terms the error has already become less than EPSILON



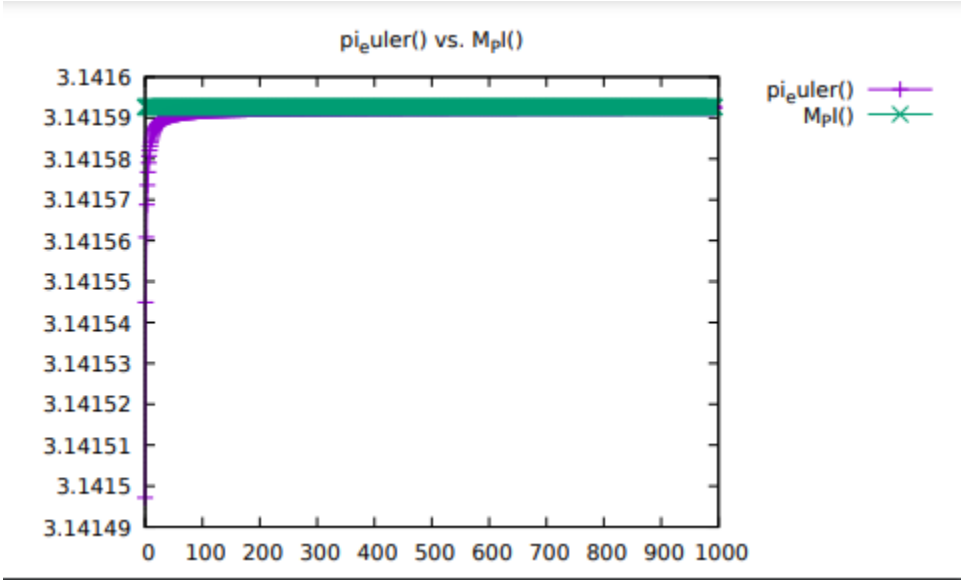
M_P shows that within 6 terms that pi_newton converges to sqrt(10)



This graph shows the viete.c using the viete method which converges to pi relatively fast due to the first term being around 3.12 so that the terms itself add very little to the summation. Overall it converges slowly after 3 terms and the approximation becomes accurate. The terms are actually factors rather than summations so it converges more smoothly.



This graph bbp.c using the bbp method converges sharply on its first term, almost a great approximation of pi, then it slowly converges to pi due to it using a large fraction as part of its summation.



This graph is based off Euler's method which has terms to the 100,000 so we took 1/100 of the points and plotted them using mod 1000 and we can see that

euler’s method converges extremely slowly and makes the most progress in its first 100 terms.