

Physics 3513, Homework #2 (due 9/10)

The numbers in parentheses after the problem number indicate points for each problem.

P1(10) (Boas 5.6) Calculate $\left(\frac{1+i}{1-i}\right)^2$

P2(10) (Boas 5.47) Solve $z^3 = -1$

P3(10) Solve $i - \frac{1}{|z|} = iz$

P4(10) (Boas 5.60) Describe and draw the geometric place of the points satisfying $|z-1+i| = 2$

P5(10) (Boas 6.2) Test for convergence: $\sum_{n=0}^{\infty} (1+i)^n$

P6(10) (Boas 7.15) Find the disk of convergence for $\sum_{n=0}^{\infty} \frac{(z-2+i)^n}{2^n}$

P7(10) (Boas 9.21) Calculate $\left(\frac{1-i}{\sqrt{2}}\right)^{40}$

P8(10) (Boas 11.6) Calculate $\cos(i \ln 5)$

P9(20) Solve

$$\begin{cases} |z-1-i| = |z+1+i| \\ |z-1+i| = |z+1-i| \end{cases}$$

What is the geometric interpretation of the problem?