Problem Set 6   **Calculus 3**   **Due 12/10/03**

Each problem is worth 5 points. For full credit indicate clearly how you reached your answer.

1. Find $(-3 + 2i) + (5 + i)$ and $(-3 + 2i) - (5 + i)$, and illustrate these operations on a sketch of the complex plane.

2. Express i and $-i$ in their polar forms and use these polar forms to find $-i \times i$ and $-i \div i$.

3. Let $\omega = 1\,\text{cis}\left(\dfrac{2\pi}{3}\right)$. Write ω in standard form and compute ω^3.

4. Write $e^{-6\pi i}$ in standard form.