Theory of Equations - Worksheet

NAME:
DATE:

1. Find all roots of $f(x) = 2x^4 + x^3 - 17x^2 - 4x + 6$

2. Find a polynomial $f(x)$ with real coefficients such that

   (a) its degree is 3 and the only roots are $-1, 3$ and $-\frac{1}{2}$. Moreover $f(0) = 6$.

   (b) its degree is 3 and the only roots are $-3, 0$, and 4. Moreover $f(5) = 80$.

   (c) its degree is 2 and has $1 + i$ as as root.

3. Find all the roots of $x^3 + 1$ in the complex number system.

4. One root of $x^3 + x^2 + x + 1$ is i. Find all the other roots.