5. (10 pts.) Find a fourth degree polynomial with roots 0, 1 and 2 + i.

\[ x(x-1)(x-(2+i))(x-(2-i)) \]

No need to simplify, but if you do, you should get

\[ x^4 - 5x^3 + 9x^2 - 5x \]

6. (10 pts.) Express the following in the form \( a + bi \).

\[ \frac{-i}{2+5i} \]

\[ \frac{-i (2-5i)}{(2+5i)(2-5i)} = \frac{-2i + 5i^2}{4 - 10i + 10i - 25i^2} \]

\[ = \frac{-2i - 5}{4 + 25} \]

\[ = \frac{-5}{29} - \frac{2}{29}i \]