Write up solutions to the following exercises. (All polynomials are considered over \(\mathbb{Q}\).)

1. Prove that \(\Phi_9(x)\) is irreducible.

2. What is \(\Phi_{10}(x)\)? Prove that \(\Phi_{10}(x)\) is irreducible.

3. What is the minimal polynomial of \(\sqrt{2} + \sqrt{3}\)?