#6

Proof: since$[E : F] = p$, where p is a prime, so we know that E is a Galois extension over F, and by Galois theory , the immediate field between E and F can only have two options, either E or F, since $F \subseteq F(a) \subseteq E$, we have $[F(a) : F] = p$or $[F(a) : F] = 1$, so we will get either $F(a) = F$or $F(a) = E$.