

Numbers refer to problems in *The Arithmetic of Elliptic Curves* (second edition) by J. Silverman

More on algebraic curves

1. 1.2 (assume that we are working over a field of characteristic 0)
2. 1.4
3. 1.10
4. Make a table of the number of points (including the point at infinity in projective space which is on the curve) on the elliptic curve $E : y^2 = x^3 - x$ with coordinates in the field of p elements for p running over odd primes less than 42. Look for a pattern in your table to conjecture a formula for the number of points in $E(\mathbf{F}_p)$, just as Gauss did in his last diary entry on 7/9/1814.