Quiz 4

Student ID Number: Name _____
Math 180B, 3PM
Please justify all your answers   May 22 - May 24
Please also write your full name on the back

1. Let E be the elliptic curve
$$E : y^2 = x^3 + x + 1.$$
Compute the number of points on E over $\mathbb{Z}/7\mathbb{Z}$. Calculate the defect $a_5 = p - N_5$.

2. Let E be the elliptic curve $E : y^2 = x^3 - 2x + 4$ and let $P = (0, 2)$ and $Q = (3, -5)$ be two points on E. The line ℓ through P and Q intersects E in a third point. Find this third point.