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10.12)

Determine all the points in $E_{11}(1,6)$, in other words find solutions (x, y) to the equation $y^2 = x^3 + x + 6 (mod\ 11)$.

(2,4),(2,7),(3,5),(3,6),(5,2),(5,9),(7,2),(7,9),(8,3),(8,8),(10,2),(10,9)

10.13)

What are the negatives of the following points over $\mathbb{Z}_{17}$? $P = (5,8)$, $Q = (3,0)$, and $R = (0,6)$

$-P = (5,9)$

$-Q = (3,0)$

$-R = (0,11)$

10.14)

$E_{11}(1,6)$, point $G = (2,7)$, compute multiples of G from $2G$ through $13G$.

G	M	R
2	$\dfrac{3*2^2+1}{2*7} = 8$	(5,2)
3	$\dfrac{7-2}{2-5} = 2$	(8,3)
4	$\dfrac{7-3}{2-8} = 3$	(10,2)
5	$\dfrac{7-2}{2-10} = 9$	(3,6)
6	$\dfrac{7-6}{2-3} = 10$	(7,9)
7	$\dfrac{7-9}{2-7} = 7$	(7,2)
8	$\dfrac{7-2}{2-7} = 10$	(3,5)
9	$\dfrac{7-5}{2-3} = 9$	(10,9)

10	$\dfrac{7-9}{2-10}$ $=3$	(8,8)
11	$\dfrac{7-8}{2-8}=2$	(5,9)
12	$\dfrac{7-9}{2-5}=8$	(2,4)
13	$\dfrac{3*2^2+1}{2*7}$ $=8$	(5,2)

10.15)

    a. (7,2)
    b. (8,3), (10,2)
    c. $P_m = C_2 - n_B \times C_1 = (10,2) - 7 \times (8,3) = (10,9)$

Commented [JA1]: Incorrect