6.39) cmmdc (21100, 12345) și coef lui Bezout

$21100 = 12345 \cdot 1 + 8755$
$12345 = 8755 \cdot 1 + 3590$
$8755 = 3590 \cdot 2 + 1575$
$3590 = 1575 \cdot 2 + 440$
$1575 = 440 \cdot 3 + 255$
$440 = 255 \cdot 1 + 185$
$225 = 185 \cdot 1 + 70$
$185 = 70 \cdot 2 + 45$
$70 = 45 \cdot 1 + 25$
$45 = 25 \cdot 1 + 20$
$25 = 20 \cdot 1 + 5$
$20 = 5 \cdot 4 + 0$
$\Rightarrow cmmdc(21100, 12345) = 5$

$x_{8755} = (1,0) - 1(0,1) = (1,-1)$
$x_{3590} = (0,1) - 1(1,-1) = (-1,2)$
$x_{1575} = (1,-1) - 2(-1,2) = (3,-5)$
$x_{440} = (-1,2) - 2(3,-5) = (-7,12)$
$x_{255} = (3,-5) - 3(-7,12) = (24,-41)$
$x_{185} = (-7,12) - (24,-41) = (-31,53)$
$x_{70} = (24,-41) - (-31,53) = (55,-94)$
$x_{45} = (-31,53) - 2(55,-94) = (-141,241)$
$x_{25} = (55,-94) - (-141,241) = (196,-335)$
$x_{20} = (-141,241) - (196,-335) = (-337,576)$
$x_5 = (196,-335) - (-337,576) = (533,-911)$
$\Rightarrow 5 = 533 \cdot 21100 + (-911) \cdot 12345$

7.39) $65^{-1} \pmod{127}$

Calc cmmdc (127, 65)

$127 = 65 \cdot 1 + 62$
$65 = 62 \cdot 1 + 3$
$62 = 3 \cdot 20 + 2$
$3 = 2 \cdot 1 + 1$
$2 = 1 \cdot 2 + 0$
$\Rightarrow cmmdc(127, 63) = 1 \Rightarrow \exists!\ 65^{-1} \pmod{127}$ (1)

$x_{62} = (1,0) - 1(0,1) = (1,-1)$
$x_3 = (0,1) - 1(1,-1) = (-1,2)$
$x_2 = (1,-1) - 20(-1,2) = (21,-41)$
$x_1 = (-1,2) - (21,-41) = (-22,43)$
$\Rightarrow 1 = (-22) \cdot 127 + 43 \cdot 65 \Rightarrow 1 - 43 \cdot 65 = 22 \cdot 127 \Rightarrow 1 \equiv 43 \cdot 65 \pmod{127}$ (2)

Din (1) și (2) $\Rightarrow 65^{-1} = 43 \pmod{127}$