

# Diskretna matematika

Rješenja zadataka za vježbu - treći ciklus 2008/2009

**1.a)**  $x^7 + x^6 + x^5 + x^4 + x^2$

**1.b)**  $x^6 + x^5 + x^2 + x$

**2.a)**  $61x^3 + \text{CA}x^2 + 87x + 37$

**2.b)**  $65x^3 + 6\text{E}x^2 + \text{C4}x + \text{FE}$

**3.**  $y = 3216951, \quad d = 47213$

**4.**  $n = 173 \cdot 179, \quad d = 1801,$

$y = 5186, 9388, 150, 22514 = \text{"DRU GIZ ADA TAK"}$

**5.**  $m = \sqrt[3]{1509003523} = 1147$

**6.a)**  $\frac{e}{n} = [0, 1, 31, 4, 2, 1, 45, 1, \dots], \quad d = 419, \quad x = 33013833016187$

**6.b)**  $\frac{e}{n} = [0, 1, 1, 7, 1, 10, 1, 6, 11, 1, \dots], \quad d = 1397, \quad x = 234437709198304$

**7.)**  $x \equiv \pm 247 \pmod{2131}, \quad x \equiv \pm 129 \pmod{3011}$

$x \in \{1035913, 1342777, 5073664, 5380528\} \Rightarrow x = 1342777$

**8.**  $K = 588653964$

**9.a)**  $e_K(x, k) = (1664, 1241)$

**9.b)**  $d_K(y_1, y_2) = 108$

**10.**  $a^{-1} \bmod p = 332, \quad z = 332 \cdot 1021 \bmod 449 = 426,$

$426 = 223 + 119 + 55 + 27 + 2, \quad (x_1, x_2, x_3, x_4, x_5, x_6, x_7) = (1, 0, 0, 1, 1, 1, 1)$