

First Assignment

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Task 1

rem	val	expr
r_0	2022	a
r_1	752	b
$r_2 = r_0 \bmod r_1$	518	a - 2b
$r_3 = r_1 \bmod r_2$	234	b - (a - 2b) = 3b - a
$r_4 = r_2 \bmod r_3$	50	(a - 2b) - 2(3b - a) = 3a - 8b
$r_5 = r_3 \bmod r_4$	34	(3b - a) - 4(3a - 8b) = 35b - 13a
$r_6 = r_4 \bmod r_5$	16	(3a - 8b) - (35b - 13a) = 16a - 43b
$r_7 = r_5 \bmod r_6$	2	(35b - 13a) - 2(16a - 43b) = 121b - 45a
$r_8 = r_6 \bmod r_7$	0	

(1)

Task 2

$$\begin{aligned}
 1) \quad & x + 17 = 23 \pmod{37} \mid -17 \\
 & x + 17 - 17 = 23 - 17 \pmod{37} \\
 & x = 6 \pmod{37} \\
 & x = 6
 \end{aligned}$$

$$\begin{aligned}
 2) \quad & x + 42 = 19 \pmod{51} \mid -42 \\
 & x + 42 - 42 = 19 - 42 \pmod{51} \\
 & x = -23 \pmod{51} \\
 & x = -23 + 51 \pmod{51} \\
 & x = 28 \pmod{51} \\
 & x = 28
 \end{aligned}$$

Task 3

Task 4