

Исходные данные

$$K = 28$$

$$C = 1997$$

$$a = 3$$

$$b = 11$$

Задача 1

$$\text{Найти } h, \quad h^2 \leq K < (h+1)^2$$

$$K < (h+1)^2$$

$$\sqrt{K} = h+1$$

$$\sqrt{K} - 1 = h$$

$$K > h^2$$

$$h^2 < K$$

$$h < \sqrt{K}$$

Задача 2

факторизация с.

$$C = 1997$$

$$1997 = 399(5) + 2$$

Задача 3

$$ax + by = c$$

$$3x + 11y = 1997$$

$$11 = 3(3) + 2$$

$$3 = 2(1) + 1$$

$$2 = 1(2) + 0$$

$$\text{Kog}(3, 11) = 1 \quad 1 | 1997$$

$$1 = 3 - 2(1)$$

$$1 = 3 - (11 - 3(3))$$

$$1 = 3(4) - 11$$

$$1 = 3(4) + (-1)11$$

$$x_0 = 4 \quad y_0 = -1$$

$$1997 = 3(7988) + (-1997)11$$

$$X = x_0 + bn, \quad n \in \mathbb{Z}$$

$$Y = y_0 - an, \quad n \in \mathbb{Z}$$

$$X = 7988 + 11n$$

$$Y = -1997 - 3n$$

$$n = 1 \Rightarrow X = 7999$$

$$Y = -2000$$

Задача 4

$$3x + 344 = 1133$$

$$3x = 1133 - 344$$

$$3x = 789$$

$$x = 263_{10} \rightarrow (?)_5$$

5	263	
5	52	3
5	10	2
5	2	0
	0	2

↑

$$(2023)_5$$

Задача 5

$$3x + 112 = 346 \quad \text{в } 7 \text{ ричной}$$

$$3x = 346 - 112$$

$$3x = 234$$

$$x = 78$$

7	78	1
7	11	1
7	1	4
	0	1

$$(141)_7$$