$\text{ggT}(252, 68) = ?$

$252 = 68 \cdot 3 + 48$

$68 = 48 \cdot 1 + 20$

$48 = 20 \cdot 2 + 8$

$20 = 8 \cdot 2 + 4$

$8 = 4 \cdot 2$

$d = (252 ; 68) = 4$

Зад 2 Да се намери чрез представяне $(252, 68) = 4$

$252 = 68.3 + 48 \Rightarrow 48 = 252 - 68.3$
$68 = 48.1 + 20 \Rightarrow 20 = 68 - 48.1 \Rightarrow 8 = 48 - 20.2$
$20 = 8.2 + (4) \Rightarrow 4 = 20 - 8.2$
$8 = 4.2$

$4 = 20 - 8.2 = 20 - (48 - 20.2).2 = 20 - 2.48 =$
$= 5(68 - 48) - 2.48 = 5.68 - 5.48 - 2.48 =$
$= 5.68 - 7.48 = 5.68 - 7(252 - 68.3) =$
$= 5.68 - 7.252 + 21\ 68 =$
$= -7.252 + 26.68$

$4 = 26.68 - 7.252$ $\boxed{u = 26 \quad v = -7}$ $(u, v) = 1$

Зад 3 НОД $(126, 81)$

$126 - 81 = 45$
$81 - 45 = 36$

$126 = 81.1 + 45 \Rightarrow 45 = 126 - 81$
$81 = 45.1 + 36 \Rightarrow 36 = 81 - 45$
$45 = 36.1 + (9) \Rightarrow 9 = 45 - 36$
$36 = 9.4 + 0$

$9 = 45 - 36 = 45 - 81 + 45 = 2.45 - 81 =$
$= 2(126 - 81) - 81 =$
$= 2.126 - 2.81 - 81 = 2.126 - 3.81$

$\boxed{u = 2 \quad v = -3}$

Зад 4

$252x + 68y = 4$

$(a,b) = (252, 68) = 4$ $\quad d \mid c \Rightarrow$ имаме реш.

$4 = \boxed{-7} \cdot 252 + \boxed{26} \cdot 68$

$(-7, 26)$ $\qquad k = 0$

$$\begin{cases} x = -7 + \frac{68}{4}k \\ y = 26 - \frac{252}{4}k \end{cases}$$

Пр. 4 $-7252 + 2668$ 2

$$\begin{cases} 252x + 68y = 4 \\ -7252 + 2668 = 4 \end{cases}$$

$252(x+7) + 68(y-26) = 0$

$252(x+7) = 68(26-y)$ | :4

$63(x+7) = 17(26-y)$ $(63,17) = 1$

$x+7 = 17k$

задъ

Да се намери общ у-ние:

$21x + 5y = 2$

$НОД(21,5) = 1$ $\Rightarrow$ има решение

$21 = 5 \cdot 4 + 1$ $5 = 1 \cdot 5$

$1 = 21 - 20$

$1 = 1 \cdot 5$

$5 = (21-20) \cdot 5$

$5 = 5 \cdot 21 - 5 \cdot 20$

$u = 21$ $v = 5$

$$\begin{cases} x = 21 + \frac{5k}{1} \\ y = 5 - \frac{21k}{1} \end{cases}$$

$21x + 5y = 2$

$5y = 2 - 21x$

$y = \frac{2 - 21x}{5}$

$y = \frac{2 - 20x - x}{5}$

$y = -4x + \frac{2-x}{5}$

$\in \mathbb{Z}$ $\in \mathbb{Z}$

$\in \mathbb{Z}$

zad 6

$56x + 40y = 24$

$(56, 40) = 8$

$56 = 40 \cdot 1 + 16 \Rightarrow 16 = 56 - 40 \cdot 1$

$40 = 2 \cdot 16 + 8 \Rightarrow 8 = 40 - 16 \cdot 2 =$

$16 = 8 \cdot 2$

$= 40 - (56 - 40) \cdot 2$

$40 - 2 \cdot 56 + 2 \cdot 40$

$8 = -2 \cdot 56 + 3 \cdot 40 \Rightarrow \boxed{u = -2 \quad v = 3}$

$-6 \quad 9$

$y = \frac{3 - 7x}{5}$

$15 = 3 - 7x$

$-7x = 12$

$x = -\frac{12}{7}$

$y = \frac{3}{5} - \frac{7x}{5} = \boxed{\frac{3}{5} - \frac{2x}{5} - x}$

$x = 9 \quad \frac{3 - 18}{5} = 3 \cdot 2k$

~~zad 200 str~~

$y_0 = \frac{3 - 18}{5} \cdot 9 = -11$

$\begin{cases} x = 9 + \frac{40}{8}k \\ y = -11 - \frac{56}{8}k \end{cases}$

$x=0$ $\frac{2}{5}$ не

$x=1$ $\frac{1}{5}$ не

$x_2 = \frac{0}{5} = 0$ да

$x_0 = 2$

$y_0 = -8$

$(2; -8)$ - частное решение

$$\begin{cases} x = 2 + 5k \\ y = -8 - 21k \end{cases}, k \in Z$$