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$$1544 = 4 \times 362 + 96$$

$$362 = 3 \times 96 + 74$$

$$96 = 1 \times 74 + 22$$

$$74 = 3 \times 22 + 8$$

$$22 = 2 \times 8 + 6$$

$$8 = 1 \times 6 + 2 \rightarrow \text{dernier reste non nul} = 2$$

$$6 = 3 \times 2 + 0$$

$$\Rightarrow \text{PGCD}(1544, 362) = 2$$

Nous allons maintenant chercher à déterminer des entiers  $U, V \in \mathbb{Z} \mid 1544U + 362V = 2$

$$P_0 = (a, 1, 0, b, 0, 1) \quad a = qb + r$$

$$P_1 = (1544, 1, 0, 362, 0, 1) \quad 1544 = 4 \times 362 + 96 \Rightarrow q = 4$$

$$P_2 = (362, 0, 1, 1544 - 4 \times 362, 1 - 4 \times 0, 0 - 4 \times 1)$$

$$P_2 = (362, 0, 1, 96, 1, -4) \quad 362 = 3 \times 96 + 74 \Rightarrow q = 3$$

$$P_3 = (96, 1, -4, 362 - 3 \times 96, 0 - 3 \times 1, 1 - 3 \times (-4))$$

$$P_3 = (96, 1, -4, 74, -3, 13) \quad 96 = 1 \times 74 + 22 \Rightarrow q = 1$$

$$P_4 = (74, -3, 13, 96 - 1 \times 74, 1 - 1 \times (-3), -4 - 1 \times 13)$$

$$P_4 = (74, -3, 13, 22, 4, -17) \quad 74 = 3 \times 22 + 8 \Rightarrow q = 3$$

$$P_5 = (22, 4, -17, 74 - 3 \times 22, -3 - 3 \times 4, 13 - 3 \times (-17))$$

$$P_5 = (22, 4, -17, 8, -15, 64) \quad 22 = 2 \times 8 + 6 \Rightarrow q = 2$$

$$P_6 = (8, -15, 64, 22 - 2 \times 8, 4 - 2 \times (-15), 17 - 2 \times 64)$$

$$P_6 = (8, -15, 64, 6, 34, -145) \quad 8 = 1 \times 6 + 2 \Rightarrow q = 1$$

$$P_7 = (6, 34, -145, 8 - 1 \times 6, -15 - 1 \times 34, 64 - 1 \times (-145))$$

$$P_7 = (6, 34, -145, 2, -49, 209) \quad 6 = 3 \times 2 + 0 \Rightarrow q = 3$$

$$P_8 = (2, -49, 209, 6 - 3 \times 2, \dots, \dots)$$

$$P_8 = (2, -49, 209, 0, \dots, \dots)$$

PGCD

U

V

$\hookrightarrow r = 0$ , on s'arrête