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- 1 Let $n = 123456789101112\dots998999$ be the natural number where is obtained by writing the natural numbers from 1 to 999 one after the other. What is the 1997-th digit number in n ?

- 2 Two squares, both with side length 1, are arranged so that one has one vertex in the center of the other. Determine the area of the gray area.
https://1.bp.blogspot.com/-xt3pe0rp1SI/XzcGLgEw1EI/AAAAAAAAAYM/vFKxvvVuLvAJ5FO_yX315X3FgiFaK2fACLcBGAsYHQ/s0/1997%2BMohr%2Bp2.png

- 3 About pentagon $ABCDE$ is known that angle A and angle C are right and that the sides $|AB| = 4$, $|BC| = 5$, $|CD| = 10$, $|DE| = 6$. Furthermore, the point C' that appears by mirroring C in the line BD , lies on the line segment AE . Find angle E .

- 4 Find all pairs x, y of natural numbers that satisfy the equation

$$x^2 - xy + 2x - 3y = 1997$$

- 5 A 7×7 square is cut into pieces following types: <https://cdn.artofproblemsolving.com/attachments/e/d/458b252c719946062b655340cbe8415d1bdaf9.png>
 Show that exactly one of the pieces is of type (b).
<https://cdn.artofproblemsolving.com/attachments/4/9/f3dd0e13fed9838969335c82f5fe866edc83e.png>