Clasa a VI-a

Problema 1

Aflati numerele naturale $\overline{xy}$,scrise in baza 10 astfel incat: $\dfrac{\overline{xy3xy}}{\overline{xy}+3} \in N.$

Solutie.

$\overline{xy3xy} = \overline{xy}\cdot 1001 + 300;$ 1p

$(\overline{xy}+3)/(\overline{xy}\cdot 1001+300)$ (1) 1p

$(\overline{xy}+3)/(\overline{xy}\cdot +3) \Rightarrow (\overline{xy}+3)/1001\cdot(\overline{xy}+3)$ (1p) (2)

Din (1) si (2) aplicand o proprietate a divizibilitatii rezulta ca :

$(\overline{xy}+3)/(\overline{xy}\cdot 1001+3003-\overline{xy}\cdot 1001-300) \Rightarrow (\overline{xy}+3)/2703$ (1p)

cum $2703 = 3\cdot 17\cdot 53$ rezulta $\overline{xy}+3 \in \{17;51;53\} \Rightarrow \overline{xy} \in \{14;48;50\}$ (1p) (1p)