

## Soluții

①  $\frac{2n+7}{5n+1}$  supraunitară  $(\Rightarrow 2n+7 > 5n+1 \mid -2n \Rightarrow$   
 $\Rightarrow 7 > 3n+1 \mid -1 \Rightarrow 6 > 3n \mid :3 \Rightarrow 2 > n \mid \Rightarrow n \in \{0, 1\}$   
 $n \in \mathbb{N}$

②  $\frac{a+2}{6} = \frac{5}{b+1} (\Rightarrow (a+2) \cdot (b+1) = 30 \Rightarrow$

$\Rightarrow \text{I} \left\{ \begin{array}{l} a+2=2 \Rightarrow a=0 \\ b+1=15 \Rightarrow b=14 \end{array} \right. ; \text{II} \left\{ \begin{array}{l} a+2=3 \Rightarrow a=1 \\ b+1=10 \Rightarrow b=9 \end{array} \right.$

$\text{III} \left\{ \begin{array}{l} a+2=5 \Rightarrow a=3 \\ b+1=6 \Rightarrow b=5 \end{array} \right. ; \text{IV} \left\{ \begin{array}{l} a+2=6 \Rightarrow a=4 \\ b+1=5 \Rightarrow b=4 \end{array} \right. ; \text{V} \left\{ \begin{array}{l} a+2=10 \Rightarrow a=8 \\ b+1=3 \Rightarrow b=2 \end{array} \right.$

$\text{VI} \left\{ \begin{array}{l} a+2=15 \Rightarrow a=13 \\ b+1=2 \Rightarrow b=1 \end{array} \right.$

③  $a = \frac{245^{15}}{100} = \frac{49}{20} ; b = \frac{96^{13}}{99} = \frac{32}{33} ; r = 1 \frac{234-2}{990} = 1 \frac{232^{(2)}}{990} = 1 \frac{116}{330}$

$S_a = 4+5+0+\dots+0 = 9 ; S_b = 9+6+9+6+\dots+9+6 =$   
 $= 15 \cdot 50 = 750 ; S_c = 2+3+4+\dots+3+4+3$

$= 2+7 \cdot 49+3 = 5+343 = 348$ , de 49 ori

④  $x = \frac{480}{3} = 160 ; y = \frac{35 \cdot 320}{100} = 112 ; z = \frac{2}{4} + \frac{3}{4} + \frac{11}{4} = 4$

$t = 10 + 18 + 244 = 272 \Rightarrow M_a = (160+112+4+272):4 = 137$

⑤  $3 \cdot 7,5 + 2 \cdot 4,75 = 22,5 + 9,50 = 32$  lei

⑥  $(7+9+10+10+x):5 = 9,20 \Rightarrow 36+x = 46,0 \Rightarrow$   
 $\Rightarrow x = 10$ .

⑦ Notăm cu  $x$  - nr. de plăci (Dovei),  $y$  (Cornel).

$x+y = 180$

$x+10\% \cdot x + y+5\% \cdot y = 194 \Rightarrow 180 + \frac{10}{100}x + \frac{5}{100}y = 194$

$\Rightarrow \frac{10x+5y}{100} = 14 \Rightarrow 10x+5y = 1400 \mid :5 \Rightarrow$

$\Rightarrow 2x+y = 280 \Rightarrow x+180 = 280 \Rightarrow x = 100$   
 $y = 80$

⑧  $(x+3,5) \cdot 2 - 1,24 = 18,6 \Rightarrow (x+3,5) \cdot 2 = 19,84$   
 $\Rightarrow x+3,5 = 9,92 \Rightarrow x = 6,42$

⑨  $\overline{1a3b} : 1,2 \in \mathbb{N} \Leftrightarrow \overline{1a3b} : 12 \in \mathbb{N} \Leftrightarrow \overline{1a3b} : 12$

$\Rightarrow \overline{1a3b} : 4 \Rightarrow \overline{3b} : 4 \Rightarrow b \in \{2, 6\}$

I  $b = 2 \Rightarrow \overline{1a32} : 3 \Rightarrow a \in \{0, 3, 6, 9\}$

II  $b = 6 \Rightarrow \overline{1a36} : 3 \Rightarrow a \in \{2, 5, 8\}$ .