

**OLIMPIADA DE MATEMATICĂ A SATELOR DIN ROMÂNIA**  
**BAREM CORECTARE - ETAPA JUDEȚEANĂ**  
**CLASA a V-a 7.03.2020**

**Problema 1. (7 puncte)**

a)  $a = 2^{4n+1} \cdot 5$  .....(2p)

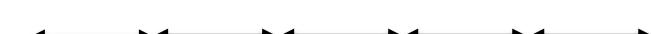
$a = 2^{4n} \cdot 10$ ,  $U(2^{4n}) = 6 \Rightarrow U_2\text{ cifre}(2^{4n} \cdot 10) = \dots 60$  .....(2p)

b)  $9^{2020} = 9^2 \cdot 9^{2018} = (7^2 + 4^2 + 4^2) \cdot 9^{2018}$  .....(2p)

$9^{2020} = (7 \cdot 9^{1009})^2 + (4 \cdot 9^{1009})^2 + (4 \cdot 9^{1009})^2$  .....(1p)

Sau  $9^{2020} = (1 \cdot 3^{2019})^2 + (2 \cdot 3^{2019})^2 + (2 \cdot 3^{2019})^2$  sau orice variantă corectă.

**Problema 2. (7 puncte)**

Sandală:   
Pantof:   
Adidas: 

$\left. \begin{array}{l} \\ \\ \end{array} \right\} 30 \text{ ani.} \quad \text{(3p)}$

$30:15=2 \text{ ani.} \quad \text{(2p)}$

Sandală are 8 ani; Pantof are 12 ani; Adidas are 10 ani; .....(1p)

$40 + x = 30 + 3x \Rightarrow x = 5$ , peste 5 ani.....(1p)

**Problema 3. (7 puncte)**

$a + b + c = 61$   
 $a = b \cdot 6 + 3, \quad 3 < b$   
 $c = b \cdot 1 + 2, \quad 2 < b$

$\left. \begin{array}{l} \\ \\ \end{array} \right\} \dots \quad \text{(4p)}$

$8 \cdot b = 56 \Rightarrow b = 7, c = 9, a = 45 \quad \text{(3p)}$

**Problema 4. (7 puncte)**

a) 23; 28; 33; 38 .....(2p)

b)  $T_n = 5 \cdot n - 2, T_{20} = 5 \cdot 20 - 2 = 98$  .....(2p)

$S = 3 + 8 + 13 + \dots + 98 = (98 + 3) \cdot 20 : 2 = 1010$  .....(2p)

c)  $T_{2020} = 5 \cdot 2020 - 2 = 10098 : 9$  .....(1p)

„Binele ce-l faci la oarecine, ți-l întoarce vremea care vine”  
Anton Pann