BAREM CORECTARE
CLASA a VI-a A

of. 10

I. Pentru fiecare răspuns corect se acordă 5p ⇒ 5×10 = 50

① C ② A ③ A ④ A ⑤ E ⑥ C

⑦ E ⑧ C ⑨ A ⑩ A

II

(11) Notăm $d=(a;b)$ și $m=[a,b] \Rightarrow 15d=m$

$d|a \Rightarrow \exists x\in N$ $d=ax$ $(x,y)=1$ 4p

$d|b \Rightarrow \exists y\in N$ $d=by$

$m\cdot d=a\cdot b \Rightarrow m\cdot d=dx\cdot dy \Rightarrow 15d^2=d^2xy$ 4p

$xy=15$, $(x,y)=1$

a) $x=1$, $y=5 \Rightarrow a=d$, $b=15d \Rightarrow 5d+45d=150$ 3p

$\Rightarrow d=3 \Rightarrow a=3$ și $b=45$

b) $x=3 \Rightarrow y=5 \Rightarrow a=3d$ și $b=5d \Rightarrow$

$15d+15d=150 \Rightarrow d=5 \Rightarrow a=15$ și $b=25$ 3p

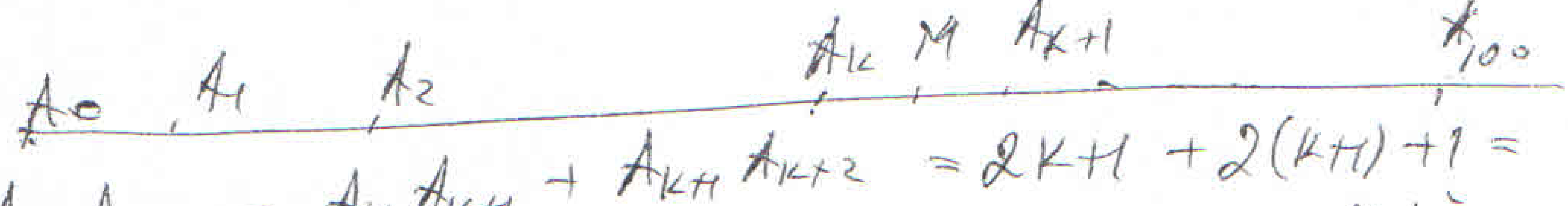
c) $x=5 \Rightarrow y=3 \Rightarrow a=5d$, $b=3d$ nu convine 3p

$25d+9d=150 \Rightarrow 34d=150$

d) $x=15 \Rightarrow y=1 \Rightarrow a=15d$, $b=d \Rightarrow$ $78d=150$ nu convine 3p

$75d+3d=150$

$\boxed{20p}$

(12) 

a) $A_kA_{k+2}=A_kA_{k+1}+A_{k+1}A_{k+2}=2k+1+2(k+1)+1=$

$=4k+4=$ par $\neq 51 \Rightarrow$ nu există segment de forma $[A_kA_{k+2}]$ de lungime 51 cm 5p

b)

VI b) $A_0A_{100} = A_0A_1 + A_1A_2 + \dots + A_{99}A_{100}$

$= 1 + 3 + 5 + \dots + (2 \cdot 99 + 1)$ ......

$S = 1 + 3 + 5 + \dots + (2k+1) =$

$S = 1+3+5+ \dots (2k+1) = 2+4+6+\dots+2k+ \underbrace{1+1 \dots +1}_{k+1}$

$= 1 + (2+1) + (4+1) + \dots (2k+1) = 2(1+2+\dots+k) + (k+1) = k(k+1)+(k+1) = (k+1)(k+1) = (k+1)^2$ 5p

$A_0A_{100} = (99+1)^2 = 100^2 = 10000$ cm. $= 5000$ cm

Fie mijlocul $[A_k, A_{k+1}] \Rightarrow A_0M = MA_{100}$

$M \in [A_k, A_{k+1}] \Rightarrow A_0A_k < A_0M < A_0A_{k+1}$ 3p

Dar $A_0A_k = A_0A_1 + A_1A_2 + \dots + A_{k-1}A_k =$

$= 1+3+5+\dots+(2(k-1)+1) = k^2$ 1p

$A_0A_{k+1} = A_0A_1 + A_1A_2 + \dots + A_kA_{k+1} =$

$1+3+5+ \dots + (2k+1) = (k+1)^2$ 2p

$\Rightarrow k^2 < 5000 < (k+1)^2 \Rightarrow 70^2 < 5000 < 71^2$ 2p

$\Rightarrow k = 70 \Rightarrow M \in [A_{70}A_{71}]$

$[A_{70}A_{71}]$ are culoare roșie 2p

20p