**Varianta 67**

**III.**

**13.** a) $[12;\ 15;\ 18] = 2^2 \cdot 3^2 \cdot 5 = 180$ .

b) $\begin{cases} a = 12 \cdot c_1 + 6 \\ a = 15 \cdot c_2 + 9 \\ a = 18 \cdot c_3 + 12 \end{cases} \Rightarrow \begin{cases} a + 6 = 12(c_1 + 1) \\ a + 6 = 15(c_2 + 1) \\ a + 6 = 18(c_3 + 1) \end{cases} \Rightarrow a + 6 = [12;15;18] = 180 \Rightarrow a_{\min} = 174$

**14.** a) $2x^2 + 3x + 1 = 0 \Rightarrow x_1 = -1;\ \ x_2 = -\dfrac{1}{2}$ .

b) Dacă $x = 3 \Rightarrow 9m + (2m-1) \cdot 3 + m - 1 = 0 \Rightarrow 16m = 4 \Rightarrow m = \dfrac{1}{4}$ .

c) Dacă $m \in \mathbf{R}^*$, $\Delta = (2m-1)^2 - 4m(m-1) = 1 \Rightarrow x_1 = \dfrac{-(2m-1)-1}{2m} = -1 \in \mathbf{Z}$ , pentru oricare $m \in \mathbf{R}^*$;

dacă $m = 0 \Rightarrow -x - 1 = 0 \Rightarrow x = -1 \in \mathbf{Z}$ .

**15.** b) $\Delta DAM \equiv \Delta ABN$ .Deci $A\hat{D}M \equiv B\hat{A}N, D\hat{M}A \equiv A\hat{N}B$ . Dar $m(A\hat{D}M) + m(D\hat{M}A) = 90° \Rightarrow$

$m(B\hat{A}N) + m(D\hat{M}A) = 90° \Rightarrow m(A\hat{P}M) = 90° \Rightarrow AN \perp DM\ \ (DM \cap AN = \{P\})$ .

c) $A_{total\check{a}} = 96\,\text{cm}^2$ .

d) $A_{\Delta A'MD} = \dfrac{DM \cdot A'P}{2} = \dfrac{2\sqrt{5} \cdot \dfrac{4\sqrt{30}}{5}}{2} = 4\sqrt{6}\ \text{cm}^2$. $9 < 4\sqrt{6} < 10 \Leftrightarrow 81 < 96 < 100$ adevărat.