**BAREM DE EVALUARE ŞI DE NOTARE**

*Varianta 117* *Prof. Muşat Claudia*

| SUBIECTUL I | | (30 de puncte) |
|---|---|---|
| 1. | 2012 | 5p |
| 2. | $\frac{1}{5}$ | 5p |
| 3. | 63 | 5p |
| 4. | 18 | 5p |
| 5. | 9 | 5p |
| 6. | 81 | 5p |
| SUBIECTUL II | | (30 de puncte) |
| 1. | Desenează prisma<br>Notează prisma | 4p<br>1p |
| 2. | $a+b=117$<br>$\frac{a}{b}=\frac{5}{4}\Rightarrow 4a=5b$<br>$4a+4b=468$<br>$b=52$<br>$a=65$ | 1p<br>1p<br>1p<br>1p<br>1p |
| 3. | Notăm cu x numărul merelor rămase, x<150<br>$x-4\in M_{16}$<br>$x-4\in M_{18}$<br>$\Rightarrow x-4\in M_{144}$ | 1p<br>1p<br>1p<br>1p<br>1p |

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| | $x-4=144\Rightarrow x=148$, deci a mâncat 2 mere. | |
| 4. | a) $(2x-y)^2=4x^2-4xy+y^2$<br>$(x-3y)(x+3y)=x^2-9y^2$<br>$(x-2y)^2=x^2-4xy+4y^2$<br>$E(x,y)=4x^2-12y^2$ | 1p<br>1p<br>1p<br>2p |
| | b) $\overline{2x}+\overline{5y}=70+x+y$ pătrat perfect, $x, y$ cifre $\Rightarrow 0\le x+y\le 18\Rightarrow x+y=11$<br>$x=5$ şi $y=6$<br>$E(5,6)=-332$ | 3p<br>1p<br>1p |
| 5 | $\frac{x}{2}\le\frac{x-1}{5}\le\frac{2x+1}{4}$<br>$10x\le 4x-4\le 10x+5\Rightarrow$<br>$0\le -6x-4\le 5\Rightarrow$<br>$-\frac{3}{2}\le x\le -\frac{2}{3}$<br>$x\in Z\Rightarrow x\in\{-1,0\}$ | 1p<br>1p<br>1p<br>1p<br>1p |
| | SUBIECTUL III | (30 de puncte) |
| 1. | a) $m(AB)=90^\circ\Rightarrow m\measuredangle(ACB)=45^\circ$<br>$m(AC)=150^\circ\Rightarrow m\measuredangle(ABC)=75^\circ$<br>$m\measuredangle(BAC)=60^\circ$<br>Fie $BE\perp AC, E\in AC, m\measuredangle(ABE)=30^\circ\Rightarrow AE=x\Rightarrow$<br>$BE=x\sqrt{3}m$ | 1p<br>1p<br>1p<br>1p<br>1p |
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| | b) $AC = AE + EC; \triangle BECdr.is. \Rightarrow BE = EC = x\sqrt{3}m$<br>$AC = x(1+\sqrt{3}) \Rightarrow$<br>$x = 2m$ | 2p<br>2p<br>1p |
| | c) $R = \dfrac{abc}{4A_{\triangle ABC}}$<br>$BC = 2\sqrt{6}$<br>$A_{\triangle ABC} = (2\sqrt{3}+6)m^2$<br>$R = 2\sqrt{2}m$ | 1p<br>1p<br>1p<br>2p |
| 2. | a) $m\measuredangle(ECD) = 60^\circ$. Fie $Q = pr_{CD}E, QC = 2m \Rightarrow DC = 5m$<br>$EQ = 2\sqrt{3}m$<br>$A = \dfrac{(B+b)\cdot h}{2}$<br>$A = 6\sqrt{3}m^2$ | 2p<br>1p<br>1p<br>1p |
| | b)Pentru $\sqrt{3} = 1,7$ avem $A = 10,2m^2$<br>10,2:2=5,1 litri vopsea<br>5,1·20=102 lei. | 3p<br>1p<br>1p |
| | c) $\triangle EQB$ dreptunghic în Q<br>$EB^2 = EQ^2 + QB^2$<br>$QB^2 = QC^2 + BC^2 \Rightarrow QB = \sqrt{29}$<br>$EB = \sqrt{41}m$ | 1p<br>1p<br>1p<br>2p |

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