

BAREM DE EVALUARE ȘI DE NOTARE

Varianta 198

Prof. Pisică Lăcrămioara

SUBIECTUL I		(30 de puncte)
1.	3	5p
2.	6	5p
3.	$(-\infty, 4]$	5p
4.	16π	5p
5.	45°	5p
6.	200	5p
SUBIECTUL II		(30 de puncte)
1.	Desenează prisma triunghiulară	4p
	Notează prisma triunghiulară	1p
2.	$\frac{p}{100} \cdot 150 = 18$	3p
	finalizare $p = 12\%$	2p
3.	$x = \text{numărul de elevi}$	
	date : $\frac{x}{4}$ elevi	1p
	teste : $\frac{1}{4} \cdot \left(x - \frac{x}{4}\right) + 2 = \frac{3x}{16} + 2$ elevi	1p
	tehnoredactare : 7 elevi	1p
	ecuația problemei devine $x = \frac{x}{4} + \frac{3x}{16} + 9$	
	finalizare $x = 16$ elevi	2p

4.	<p>a) $x^3 - 3x^2 - 4x + 12 = x^2(x-3) - 4(x-3)$</p> <p>$x^2(x-3) - 4(x-3) = (x-3)(x^2 - 4) = (x-3)(x-2)(x+2)$</p> <p>finalizare $a = -3$, $b = -2$, $c = 2$</p>	<p>2p</p> <p>2p</p> <p>1p</p>
	<p>b) $x^2 - x - 6 = x^2 - 3x + 2x - 6 = x(x-3) + 2(x-3) = (x-3)(x+2)$</p> <p>rezolvând paranteza obținem :</p> $\left[\frac{x}{(x+2)(x-3)} - \frac{3}{(x-3)(x-2)(x+2)} \right] = \frac{x^2 - 2x - 3}{(x-3)(x-2)(x+2)}$ <p>înlocuind $x^2 - 2x - 3 = x^2 - 3x + x - 3 = (x-3)(x+1)$</p> <p>paranteza devine $\frac{x+1}{(x-2)(x+2)}$</p> <p>finalizare $E(x) = 1$</p>	<p>1p</p> <p>1p</p> <p>1p</p> <p>1p</p>
5	<p>$G_f \cap \{ (x, y) \} \Rightarrow \begin{cases} f(x) = y \\ g(x) = y \end{cases}$</p> <p>$f(x) = g(x) \Rightarrow 2x + 1 = 3x - 1 \Rightarrow x = 2$</p> <p>$y = f(2) \Rightarrow y = 5$</p> <p>finalizare $M(2, 5)$</p>	<p>1p</p> <p>2p</p> <p>1p</p> <p>1p</p>
SUBIECTUL III		(30 de puncte)
1.	<p>a) $A_{\text{parc}} = A_{ABCD} + A_{DCF} + A_{ABE}$</p> $A_{ABCD} = \frac{(AB + CD) \cdot h}{2} = 450\sqrt{3} \text{ dam}^2$ $A_{DCF} = \frac{DC^2 \sqrt{3}}{4} = 144\sqrt{3} \text{ dam}^2$	<p>1p</p> <p>1p</p>

	$A_{ABE} = \frac{AB^2 \sqrt{3}}{4} = 324\sqrt{3} \text{ dam}^2$ $A_{\text{parc}} = 918\sqrt{3} \text{ dam}^2 \approx 1588,12 \text{ dam}^2 = 15,8812 \text{ ha}$ $\Rightarrow A_{\text{parc}} > 15 \text{ ha}$	<p>1p</p> <p>1p</p> <p>1p</p>
	<p>b) $DC \parallel AB \Rightarrow \Delta \sim \Delta \quad \frac{OC}{OA} = \frac{OD}{OB} = \frac{DC}{AB}$</p> <p>$\Delta$ echilateral $\Rightarrow [DC] \equiv [FC]$, Δ echilateral $\Rightarrow [AB] \equiv [AE]$</p> $\Rightarrow \frac{OC}{OA} = \frac{FC}{AE} \quad (1)$ <p>$DC \parallel AB$ și AC secantă $\Rightarrow \sphericalangle \quad \sphericalangle$ (alterne interne)</p> <p>Δ și Δ echilaterale $\Rightarrow m(\sphericalangle \quad \sphericalangle$</p> $\Rightarrow \sphericalangle \quad \sphericalangle \quad (\text{sumă de unghiuri congruente}) \quad (2)$ <p>Din (1) și (2) $\xrightarrow{\text{cazul II de asemanare}} \Delta \sim \Delta$</p>	<p>2p</p> <p>2p</p> <p>1p</p>
	<p>c) $\Delta \sim \Delta \quad \sphericalangle \quad \sphericalangle$</p> <p>$A, O, C$ coliniare $\Rightarrow m(\sphericalangle \quad \sphericalangle \quad \sphericalangle$</p> <p>$\Rightarrow m(\sphericalangle \quad \sphericalangle \quad \sphericalangle \Rightarrow E, O, F$ coliniare</p>	<p>2p</p> <p>2p</p> <p>1p</p>
2.	<p>a) $V_{\text{recipient}} = AB \cdot BC \cdot AE = 1920 \text{ cm}^3 = 1,92 \text{ dm}^3 < 2 \text{ dm}^3$</p> <p>$1 \text{ dm}^3 \sim$ în recipient încăp mai puțin de 2l de înghețată</p>	<p>3p</p> <p>2p</p>
	<p>b) $V_{\text{con}} = \frac{\pi R^2 H}{3} = 12\pi \text{ cm}^3 \approx 37,68 \text{ cm}^3$</p> <p>$\Rightarrow 50 \cdot V_{\text{con}} = 1884 \text{ cm}^3 < V_{\text{recipient}} \Rightarrow$ se pot umple cele 50 de conuri</p>	<p>3p</p> <p>2p</p>
	<p>c) $\Delta \quad \sphericalangle \quad \circ) \Rightarrow VA^2 = VO^2 + OA^2 \Rightarrow VA = \sqrt{85} \text{ cm}$</p>	<p>2p</p>

	$A_{\Delta} \quad \frac{VO \cdot AB}{2} = 18 \text{ cm}^2$	
	$A_{\Delta} \quad \frac{VA \cdot VB \cdot \sin(\sphericalangle)}{2} = \frac{\sphericalangle}{2}$	2p
	$\Rightarrow \sin(\sphericalangle) = \frac{36}{85}$	1p

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