

**Evaluarea națională pentru absolvenții clasei a VIII-a**  
**Ianuarie 2024**  
**Matematică**  
**Barem de evaluare și de notare**

Simulare județeană

**SUBIECTUL I**

(30 puncte)

|    |    |    |
|----|----|----|
| 1. | b) | 5p |
| 2. | a) | 5p |
| 3. | d) | 5p |
| 4. | c) | 5p |
| 5. | c) | 5p |
| 6. | a) | 5p |

**SUBIECTUL al II-lea**

(30 puncte)

|    |    |    |
|----|----|----|
| 1. | b) | 5p |
| 2. | d) | 5p |
| 3. | b) | 5p |
| 4. | c) | 5p |
| 5. | b) | 5p |
| 6. | c) | 5p |

**SUBIECTUL al III-lea**

(30 puncte)

|    |                                                                                                                                                                                       |                |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 1. | a) $91:10=9$ rest 1<br>$1 \neq 9$ deci numărul de copii nu poate fi egal cu 91                                                                                                        | 1p<br>1p       |
|    | b) $m = \text{nr. mese}$ , $c = \text{nr. copii}$ , $8m+3=c$ ,<br>$10(m-3)+9=c$<br>$m=12$ , $c=99$                                                                                    | 1p<br>1p<br>1p |
| 2. | a) $E(x) = 4x^2 - 4x + 1 - 3(x^2 - 1) - 9 =$<br>$x^2 - 4x - 5 = (x - 5)(x + 1)$                                                                                                       | 1p<br>1p       |
|    | b) $\frac{7(n-5)}{(n-5)(n+1)} = \frac{7}{n+1} \in \mathbb{Z}$<br>$n + 1 \in D_7$<br>$n \in \{0; 6\}$                                                                                  | 1p<br>1p<br>1p |
| 3. | a) $a = \frac{1}{5\sqrt{3}}(10\sqrt{3} + 5 \cdot 2\sqrt{3}) =$<br>$\frac{1}{5\sqrt{3}} \cdot 20\sqrt{3} = 4$                                                                          | 1p<br>1p       |
|    | b) $b = 5\sqrt{2} \left( \frac{1}{\sqrt{2}} + \frac{4\sqrt{3}}{\sqrt{6}} \right) = 25$<br>$m_g = \sqrt{a \cdot b} = 10$<br>$[3\sqrt{11} + 2] = 11 \Rightarrow m_g < [3\sqrt{11} + 2]$ | 1p<br>1p<br>1p |
|    |                                                                                                                                                                                       |                |
| 4. | a) $\sphericalangle BAD = \sphericalangle CAE = 90^\circ - \sphericalangle DAE$<br>$\triangle ABD \equiv \triangle ACE \Rightarrow BD \equiv CE$                                      | 1p<br>1p       |
|    | b) $\triangle ABE$ dreptunghic, AD mediană $\Rightarrow AD=DE$<br>$\triangle ADE$ echilateral, $\sphericalangle B = 30^\circ$<br>$CF = \frac{BC}{2} = 12 \text{ cm}$                  | 1p<br>1p<br>1p |
| 5. | a) $BE = 5 \text{ cm} \Rightarrow BF = CF = OB = OC = 5\sqrt{2} \text{ cm}$<br>$\sphericalangle BOC = 90^\circ \Rightarrow OBFC$ pătrat                                               | 1p<br>1p       |

|           |                                                                                                                                                                                                         |                                     |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
|           | <b>b)</b> DCFO paralelogram<br>M mijlocul lui DF $\Rightarrow$ M mijlocul lui OC<br>A, O, C coliniare $\Rightarrow$ A, O, M coliniare                                                                   | <b>1p</b><br><b>1p</b><br><b>1p</b> |
| <b>6.</b> | <b>a)</b> $\triangle ABC$ echilateral $\Rightarrow A_{\triangle ABC} = \frac{l^2\sqrt{3}}{4}$<br>$A_{\triangle ABC} = \frac{225\sqrt{3}}{4} cm^2$                                                       | <b>1p</b><br><b>1p</b>              |
|           | <b>b)</b> $\triangle ABC$ echilateral, M=centru de greutate $\Rightarrow AM \perp BC$<br>$DO \perp BC, AM, DO \subset (AMD), AM \cap DO = \{T\}, T =$ mijlocul lui $BC$<br>$\Rightarrow BC \perp (AMD)$ | <b>1p</b><br><b>1p</b>              |
|           | $OM \subset (AMD) \Rightarrow BC \perp OM$                                                                                                                                                              | <b>1p</b>                           |