

**Barem de corectare CMAA 2024 Clasa a XI-a - Tehnic**

**P1**

$C = A \cdot B \in M_{4,1}(R)$	2p
$C = \begin{pmatrix} 1430 \\ 1100 \\ 1090 \\ 1560 \end{pmatrix}$	4p
Patronul va renunța la magazinul M3	1p

**P2 – manual**

a) $B \in AC \Rightarrow \begin{vmatrix} 2 & -3 & 1 \\ m+1 & 2m & 1 \\ 1 & 5 & 1 \end{vmatrix} = 0$	1p
$10m - 5 = 0 \Rightarrow m = \frac{1}{2}$	2p
b) $A_{ABC} = \frac{1}{2}  \Delta , \Delta = 10m - 5 \Rightarrow  10m - 5  = 45$	2p
$10m - 5 = 45 \Rightarrow m = 5, 10m - 5 = -45 \Rightarrow m = -4$	2p

**P3**

a) $\lim_{x \rightarrow -\infty} f(x) = +\infty \Rightarrow$ nu există asimptotă orizontală	1p
$m = \lim_{x \rightarrow -\infty} \frac{\sqrt{x^2 - x + 2}}{x} = -1, n = \lim_{x \rightarrow -\infty} \left( \sqrt{x^2 - x + 2} + x \right) = \frac{1}{2},$ $y = -x + \frac{1}{2}$ este ecuația asimptotei oblice	3p
b) Fie $l = \lim_{x \rightarrow \infty} \left( \sqrt{x^2 - x + 2} - ax - b \right)$ . Dacă $a < 0 \Rightarrow l = +\infty \Rightarrow a > 0$	1p
$l = \frac{(1 - a^2)x^2 + (-1 - 2ab)x + 2 - b^2}{x \cdot \left( \sqrt{1 - \frac{1}{x} + \frac{1}{x^2}} + a + \frac{b}{x} \right)} = 5 \Rightarrow 1 - a^2 = 0, a > 0 \Rightarrow a = 1$	1p
$\frac{-1 - 2ab}{1 + a} = 5, a = 1 \Rightarrow b = -\frac{11}{2}$	1p

**P4**

$l_s(2) = \lim_{\substack{x \rightarrow 2 \\ x < 2}} \left( \frac{a(x-2)(2x-1)}{(x-2)(x-3)} \right) = -3a$	2p
$l_d(2) = \lim_{\substack{x \rightarrow 2 \\ x > 2}} \left( \frac{e^{x^2-2x} - 1}{x^2 - 2x} \cdot \frac{x^2 - 2x}{x - 2} + \frac{\sin(x^2 - 4)}{x^2 - 4} \cdot \frac{x^2 - 4}{x - 2} \right) = 6$	2p
$l_s(2) = l_d(2) \Rightarrow -3a = 6 \Rightarrow a = -2$	3p