

Barem de corectare

Problema 1.

- a) $E(x) = \frac{x}{x+1}$ 5p
 $x < x + 1 \Rightarrow \frac{x}{x+1} < 1$ pentru orice n natural $n \geq 2$ 5p
b) $\frac{1}{2} \cdot E(2) \cdot E(3) \cdot E(4) \dots E(2025) = \frac{1}{2026}$ 5p
inversul lui $\frac{1}{2026}$ este 2026 2p
 $D_{2026} = \{\pm 1; \pm 2; \pm 1013; \pm 2026\}$ deci 2026 are 8 divizori 3p

Problema 2.

- a) $f(-1) = 0$ 5p
Finalizare $a = 1$ 5p
b) $A(-1; 0)$ si $B(0; 2)$ 4p
 $A_{AMB} = 4$ 3p
 $AB = \sqrt{5}$ 4p
 $d(M; AB) = \frac{8\sqrt{5}}{5}$ 4p

Problema 3.

- a) $A_t = 72(9 + \sqrt{3})cm^2$ 5p
 $72(9 + \sqrt{3}) > 720$ 5p
b) $d(A; (BCD)) = 9cm$ 5p
 $AM \perp (BCD)$ 5p
 $EF \parallel BC \Rightarrow AM \perp EF \Rightarrow m(\sphericalangle AM; EF) = 90^\circ$ 5p

Problema 4.

- a) $BN = AN = 6\sqrt{3}cm$ 4p
 $MN = 6\sqrt{2} cm$ 4p
 $6\sqrt{2} cm = \sqrt{72} < \sqrt{75} = 5\sqrt{3}$ 2p
b) $\cos(\sphericalangle(ABN), (ABC)) = \cos(\sphericalangle NMC)$ 5p
 $\cos(\sphericalangle NMC) = \frac{\sqrt{6}}{3}$ 5p