Colegiul Național
Emil Racoviță Iași
Excelență în educație

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Clasa a XII-a - barem

1) $A_{ABC}=\frac{1}{2}\cdot|\Delta|$ 0,5p

$\Delta=\begin{vmatrix}1 & 3 & 1\\ 2 & 5 & 1\\ 3 & 1 & 1\end{vmatrix}=-6$ 1p

$A_{ABC}=3u$ 0,5p

2) a) $\lim\limits_{x\to 0}\frac{\sin 3x}{e^{2x}-1}=\lim\limits_{x\to 0}\frac{\frac{\sin 3x}{3x}\cdot 3x}{\frac{e^{2x}-1}{2x}\cdot 2x}$ 0,5p

$=\frac{3}{2}$ 0,5p

b) $\lim\limits_{x\to\infty}\frac{x^2-x+2-x^2}{\sqrt{x^2-x+2}+x}$ =.....0,5p

$=-\frac{1}{2}$ 0,5p

c) $\lim\limits_{x\to 0}\left(1+e^x+\sin x-1\right)^{\frac{1}{x}}$ 0,5p

$=e^{\lim\limits_{x\to 0}\frac{e^x-1}{x}+\frac{\sin x}{x}}=e^2$ 0,5p

3) a) $f'(x)=\frac{2x+e^x\cdot(2x-x^2-3)}{\left(e^x+1\right)^2}$ 1p

b) $g'(x)=-\frac{2x\cdot\sin\left(x^2+1\right)}{\cos\left(x^2+1\right)}$ 1p

4) $S=\left\{\left(\frac{17-\lambda}{5},\frac{-3\lambda-4}{5},\lambda\right)\middle|\lambda\in\mathbb{R}\right\}$ sistem compatibil nedeterminat.....2p

Oficiu……..……..1p