Family name:	First name:		Matr.no.:		1
For each question, choose ONE a	nswer and write ONLY	the letter of that a	inswer at the end	of the arrow	
1) Compute all solutions of the s	-,	$2x \le -2$ - 1 > 1 - 3x.			
Answer: $\boxed{\mathbf{A}} - 3 < x \le -\frac{5}{3}$	$\boxed{\mathbf{B}} -3 < x \le -\frac{2}{3}$	$\boxed{\mathbf{C}}$ No x	$\boxed{\mathrm{D}} x \ge \frac{5}{3}$	$\boxed{\mathbf{E}} x \le -\frac{5}{3}$	$\longrightarrow \mathbf{E}$
2) Compute all solutions of the in Answer: $\boxed{\mathbf{A}} - \frac{3}{2} \le x \le \frac{1}{4} \left(1 + \sqrt{4} \right)$ $\boxed{\mathbf{E}} x \le \frac{1}{4} \left(-1 - \sqrt{17} \right)$ or $x \ge \frac{1}{4} \left(-1 - \sqrt{17} \right)$	$\overline{33}) \boxed{\mathbf{B}} x \le -1 \text{ or } x \ge 1$		$-\sqrt{13}$) or $x \ge \sqrt{2}$	$\overline{2} - 1$ D $-1 \le x \le 0$	\rightarrow C
3) Compute the limit $\lim_{x \to 0^{-}} -\frac{e^{5x}}{2}$ Answer: A $-\frac{5}{3}$ B 1		D Does not exist	E $\frac{5}{3}$	\mathbf{F} $-\frac{5}{9}$	$\rightarrow \mathbf{A}$
4) Compute the limit $\lim_{x \to 0^-} \frac{\log(1)}{\sin^2}$ Answer: A 1 B -3	$\frac{-3x)}{(x)}.$ C Does not exist	st D -1	E $\frac{5}{3}$	F 5	$\rightarrow \mathbf{B}$
5) Compute the value $f'(0)$ of the					
	f(x) = ex	$p\left(\frac{-x+1}{4x+1}\right).$			
Answer: A 1	$\frac{4}{e^2}$ C $\frac{5}{e}$	D -9	e^2 [\mathbf{E} $-5e$	$\longrightarrow \mathbf{E}$
6) Find the domain of definition	of the function				
	$f(x) = \epsilon$	$2x + \frac{1}{-2x-1} + 1$.			
Answer: $A \neq -\frac{1}{2}$	$\mathbf{B} x \neq -\frac{1}{5} \qquad \qquad \mathbf{C}$	$x \neq \frac{1}{5}$ D	$x \neq \frac{7}{9}$	$E x \neq -\frac{2}{9}$	$\longrightarrow \mathbf{A}$
7) Compute the limit as $x \to +\infty$ Answer: $A = -\infty$	$ \begin{array}{c} \text{ of } f(x). \\ \text{ B } 0 \\ \end{array} \qquad \qquad$	1 D	1	$E + \infty$	$\longrightarrow \mathbf{E}$
8) Compute the value $f'(0)$ of the Answer: $A - 2e^{9/4}$			D $2e^{8/3}$	E 1	\rightarrow C
9) Which are the points of minim Answer: $A = -\frac{3}{2}$		$\boxed{\mathbf{C}} x = 0$	$\boxed{\mathrm{D}} x = 1$	E Noo	$\longrightarrow \mathbf{E}$
10) Which of the following graph		of $f(x)$?		E	$ ightarrow {f E}$
				BON	US

Family name:	First name:		Matr.no.:		2
For each question, choose ONE an	swer and write ON	LY the letter of t	that answer at the er	nd of the arrow	
1) Compute all solutions of the sy	- /	$2 \le x - 2x^2$ - 3 > $ 1 - 2x $.			
Answer: $A > 4$ $B 0 <$	$x \le \frac{1}{2} \left(\sqrt{5} - 1\right)$	$\boxed{\mathbf{C}} x > 0$	\square No x	$\boxed{\mathrm{E}} x > -\frac{1}{3}$	\longrightarrow D
2) Compute all solutions of the in- Answer: $\boxed{A} \frac{1}{2} \left(-1 - \sqrt{13}\right) \le x \le $ $\boxed{E} x \le \frac{1}{2} \left(-5 - \sqrt{37}\right) \text{ or } x \ge \frac{1}{2} \left(-5 - \sqrt{37}\right) = 0$	$\frac{1}{2}\left(3+\sqrt{5}\right) \ \boxed{\mathbf{B}} \ x \le \frac{1}{2}\left(3+\sqrt{5}\right) \ \mathbf{B} \ x = \frac{1}{2}\left(3+\sqrt{5}\right) \ \mathbf{B} \$		All R $\boxed{D} \frac{1}{2} (3 - \sqrt{2})$	$\overline{21} \le x \le \frac{1}{2} \left(3 + \sqrt{21}\right)$	$\rightarrow \mathbf{E}$
3) Compute the limit $\lim_{x \to 0^-} -\frac{e^x - e^x}{e^x - e^x}$	$\frac{\cos(3x)}{9x}.$				
Answer: $\boxed{\mathbf{A}} \frac{5}{9} \qquad \boxed{\mathbf{B}} - \frac{1}{9}$	\boxed{C} $-\frac{1}{3}$	D $\frac{5}{3}$	$E_{\frac{1}{9}}$ F_{I}	Does not exist	$\longrightarrow \mathbf{B}$
4) Compute the limit $\lim_{x \to 0} \frac{\sin(x^2 - x^2)}{7x - x^2}$			_	_	
Answer: $\boxed{A} \frac{1}{3}$ $\boxed{B} \frac{1}{7}$	$C \frac{2}{5}$	D $\frac{2}{3}$	E Does not exist	\mathbf{F} $\frac{2}{7}$	$\rightarrow \mathbf{F}$
5) Compute the value $f'(0)$ of the) for the function = $\exp\left(\frac{-x-2}{4x+1}\right)$.			
Answer: $A - e$ B	-1 C	$\frac{4}{e^2}$	$\boxed{\mathrm{D}} - 6e^2$	$\mathbb{E}\left[\frac{7}{e^2}\right]$	$\longrightarrow \mathbf{E}$
6) Find the domain of definition of	f the function				
	f(x) =	$2\log\left(x^2 + x + 2\right)$			
Answer: $\boxed{\mathbf{A}} \frac{1}{2} \left(-3 - \sqrt{13} \right) < x < 1$	2 \	$\boxed{\mathbf{B}} x > 0 \qquad \boxed{\mathbf{C}}$	All \mathbb{R} D $x \neq$	1 $\boxed{\mathbf{E}} x < 0$	\rightarrow C
7) Compute the limit as $x \to -\infty$					П
Answer: $ \mathbf{A} - 1$ $ \mathbf{B} $		$-\infty$	$D + \infty$	E 1	$\rightarrow \mathbf{D}$
8) Compute the value $f'(0)$ of the Answer: $\boxed{\mathbf{A}} - \frac{2}{3}$		$\begin{array}{c} \text{in } x = 0. \\ \hline \text{C} 3 \end{array}$	D 2	E $\frac{2}{3}$	$\longrightarrow \mathbf{B}$
9) Which are the points of minimum Answer: $A = -\frac{1}{6}$		C x = 2	$\boxed{\mathbf{D}} x = -\frac{1}{2}$	$\boxed{\mathrm{E}} x = 1$	\rightarrow D
10) Which of the following graphs	is closer to the gra	ph of $f(x)$?			
Answer: A					$ ightarrow \mathbf{C}$
				BONI	JS

Family name:	First	name:	Matr.no	D.:	3
For each question, choose C	ONE answer and w	rite ONLY the lette	r of that answer at the	e end of the arrow	
1) Compute all solutions of	•	qualities $\begin{cases} x+1 - 2x \le 1\\ x^2 - 2x + 2 > x + \end{cases}$	- 2.		
Answer: $\boxed{\mathbf{A}} \ 0 < x < 1$	$\boxed{B} x > 3$	$\boxed{\mathbb{C}} -3 < x \le -2$	$\boxed{\mathbb{D}} - 3 < x \le -$	-1 E $x > 0$	$\longrightarrow \mathbf{B}$
2) Compute all solutions of Answer: A $x < \frac{1}{6} \left(-3 - x\right)$ $x > 3 + \sqrt{11}$ D $\frac{1}{2}$				(-5) [C] $x < 3 - \sqrt{11}$ or or $x > \frac{1}{3} (1 + \sqrt{7})$	\rightarrow C
3) Compute the limit $\lim_{x\to 0^-}$ Answer: A Does not exist		C 1	$\boxed{D} \frac{1}{9} \qquad \boxed{E} -1$	\mathbf{F} $-\frac{1}{3}$	\rightarrow F
4) Compute the limit $\lim_{x \to 0} \frac{1}{x \to 0}$ Answer: A 3 B	$\frac{\log(5x+1)}{x^2+x}.$ Does not exist	C 1	D -3 E	$\frac{5}{3}$ F 5	$ ightarrow \mathbf{F}$
5) Compute the value $f'(0)$	of the derivative i	n $x = 0$ for the func	etion		
		$f(x) = \frac{\sin(-2x)}{3x^2 + 1}$	<u>)</u> .		
Answer: $A - 2$	$B - \frac{1}{2}$	C $\frac{1}{2}$	D 1	$\boxed{\mathrm{E}} - \frac{1}{3}$	$\rightarrow \mathbf{A}$
6) Find the domain of defin	ition of the function	on			
		$f(x) = \frac{e^{-2x}}{2x^2 + x} + \frac{1}{2x^2 + x} + \frac{1}{2x^$	- 1.		
Answer: A All \mathbb{R} B $x \neq$		and $x \neq \sqrt{2} - 1$ D	$x \neq -1 \boxed{\mathbf{E}} x \neq \frac{1}{2} \left(1 - \frac{1}{2}\right)$	$-\sqrt{5}$) and $x \neq \frac{1}{2} (1 + \sqrt{5})$	$\rightarrow \mathbf{A}$
7) Compute the limit as $x - Answer: A - \infty$	$\rightarrow +\infty \text{ of } f(x).$ B $-\frac{1}{2}$	$C \frac{1}{3}$	$D - \frac{1}{3}$	\mathbf{E} 0	$\rightarrow \mathbf{E}$
8) Compute the value $f'(0)$					
Answer: $A \frac{1}{5}$	$\frac{B}{8} \frac{7}{8}$	$\begin{bmatrix} C \end{bmatrix} \frac{1}{7}$	D -3	\mathbb{E} $\frac{1}{3}$	$\longrightarrow \mathbf{D}$
9) Which are the points of					
Answer: $A = -\frac{5}{2}$	$\boxed{\mathbf{B}} x = -\frac{2}{3}$	$\boxed{\mathbf{C}} x = -1$	$\boxed{\mathbf{D}} x = \frac{1}{2} \left(1 - \sqrt{7} \right)$	E Noo	$\rightarrow \mathbf{E}$
10) Which of the following	graphs is closer to	the graph of $f(x)$?	· · · · · · · · · · · · · · · · · · ·		
Answer: A				E	\longrightarrow A
				BON	US

Family name: For each question, choos		name: rite ONLY the lett	er of that answ	Matr.no.: rer at the end	l of the arrow	4
1) Compute all solutions	s of the system of ine					
Answer: $A x \le -2$	$\boxed{B}\ 3 \le x < 4$	$\boxed{\mathbb{C}} -3 < x \leq \cdot$	$-\frac{2}{3}$ D	0 < x < 1	$\boxed{\mathrm{E}} x > 3$	\rightarrow C
2) Compute all solutions Answer: $\boxed{\mathbf{A}} x \le \frac{1}{2} \left(-3 \\ x \ge \sqrt{2} - 2 \right)$				$x \ge \frac{1}{6} \left(1 + \sqrt{21} \right) \le x \le \frac{1}{6}$	$ \frac{\sqrt{37}}{\frac{1}{2} \left(\sqrt{13} - 3\right)} \qquad \boxed{C} x \le -2 \text{ or} $	$\rightarrow D$
3) Compute the limit $\lim_{x \to a} x^{-1}$	$\lim_{x \to 0+} \frac{\sin(3x)}{e^{3x} - 1}.$					
Answer: A 1	B Does not exist	C 5	D $-\frac{5}{3}$	$E \frac{5}{3}$	F 3	$\rightarrow \mathbf{A}$
4) Compute the limit $\lim_{x \to 0} x^{-1}$ Answer: A Does not e		$\boxed{C}\frac{2}{3}$	D $\frac{1}{3}$	$E_{\frac{2}{5}}$	$\overline{\mathrm{F}}$ $\frac{1}{7}$	\rightarrow C
5) Compute the value f'	'(0) of the derivative (0)	in $x = 0$ for the fun	nction			
	f($x) = \left(x^2 - 1\right)\sin\left(\frac{x^2}{2}\right)$	$2x + \frac{\pi}{2}$).			
Answer: $\boxed{\mathbf{A}} - 1$	B 0	C –2	D 2		E 1	$\longrightarrow \mathbf{B}$
6) Find the domain of d	efinition of the functi	on				
		$f(x) = (x+1)e^{2-2x}$	$\arctan(x)$.			
Answer: $A \neq 0$	\square All \mathbb{R}	$\boxed{\mathbf{C}} -\pi < x < \pi$	$D x \ge$	$\geq -\pi$	$\boxed{\mathbf{E}} x > -\pi$	$\longrightarrow \mathbf{B}$
7) Compute the limit as Answer: $\boxed{A} \frac{\pi}{3}$	$x \to -\infty$ of $f(x)$. B $-\pi$	C 1	$D + \infty$		$\mathbf{E} - \infty$	$\rightarrow \mathbf{E}$
8) Compute the value f' Answer: A $3e^2$	(0) of the derivative $(B) - 4e$	of $f(x)$ in $x = 0$. C $\frac{3}{e}$	$\boxed{\mathrm{D}}$ -e	2	$[\mathbf{E}] e$	\longrightarrow D
9) Which are the points Answer: $\boxed{\mathbf{A}} x = -2$	of minimum of $f(x)$? B $x = 1 + \sqrt{2}$		$-\sqrt{2}$	$\mathbf{D} \ x = 1$	E Noo	$\rightarrow \mathbf{B}$
10) Which of the following Answer: A	ng graphs is closer to B	the graph of $f(x)$?	, D		E	$\rightarrow \mathbf{B}$
					BON	IUS

Family name:	First n oose ONE answer and writ			Matr.no.:	the emer	5
	ons of the system of inequa			r at the end of	the arrow	
Answer: $A \le -\frac{5}{3}$	$\boxed{\mathbf{B}} \ 1 \le x < 4$	$\boxed{\text{C}} \ 3 \le x < 4$		> 0	$E x \le -5$	$\longrightarrow \mathbf{D}$
	ons of the inequality $-2 x$ $-1 - \sqrt{13}$) or $x > \frac{1}{2} (\sqrt{13} - x)$ $x > \sqrt{6} - 1$			$x > \frac{1}{6} \left(3 + \sqrt{2}\right)$	$\overline{1}$) $C x < -$	$5 \longrightarrow \mathbf{A}$
3) Compute the limit Answer: A 1	$\lim_{x \to 0} -\frac{e^{3x^2 + x} - 1}{9x}.$ $\boxed{\mathbf{B}} -\frac{1}{9} \qquad \boxed{\mathbf{C}} \frac{1}{9}$	D Does n	ot exist	E -1	F $\frac{1}{3}$	$\rightarrow \mathbf{B}$
4) Compute the limit Answer: A 4	$\lim_{x \to 0^{-}} \frac{x^3 + x^2}{1 - \cos(5x)}.$ B Does not exist	C 2	D $\frac{2}{49}$	\mathbb{E} $\frac{4}{25}$	F $\frac{2}{25}$	$ ightarrow \mathbf{F}$
5) Compute the value	f'(0) of the derivative in	x = 0 for the func	tion			
	f(x)	$= -\cos\left(x\exp(2x)\right)$	$\left(-\frac{\pi}{2} \right)$.			
Answer: $\boxed{\mathbf{A}} 2$	B 4	C -1	D -4	I	E 0	$ ightarrow \mathbf{C}$
6) Find the domain of	f definition of the function					
		$f(x) = \frac{2x^2 + x + x}{x - 1}$	<u> </u>			
Answer: A All \mathbb{R}	$\boxed{\mathbf{B}} x \neq \frac{1}{3}$	$\boxed{\mathbf{C}} x > 0$	$\boxed{\mathbf{D}} x \neq 1$	l E	$x \ge 0$	\longrightarrow D
7) Compute the limit Answer: $\boxed{\mathbf{A}} - 1$	as $x \to 1-$ of $f(x)$. B 1	C + ∞	D 0	Ε	$-\infty$	$\longrightarrow \mathbf{E}$
8) Compute the value Answer: $\boxed{\mathbf{A}} - 1$	f'(0) of the derivative of B -3	$f(x) \text{ in } x = 0.$ $\boxed{C} 4$	D $\frac{3}{4}$	Ε	-2	$\longrightarrow \mathbf{E}$
	ts of minimum of $f(x)$? $\sqrt{2}$ B $x = \frac{1}{3} \left(-1 - \sqrt{2} \right)$	$\overline{7}$) $\boxed{C} x = \frac{1}{2} (2$	$+\sqrt{6}$ D a	$x = \frac{1}{6} \left(2 + \sqrt{22} \right)$	$\overline{2}$) $\overline{E} x = 0$	$\rightarrow \mathbf{A}$
10) Which of the follo	wing graphs is closer to th	the graph of $f(x)$?		1.8		
Answer: A	B and the second		D	••• ••• •		$ ightarrow \mathbf{B}$
					BO	NUS

4) Compute the limit $\lim_{x \to 0+} -\frac{\log(x+1)}{\sin(3x)}$.	6
$\begin{cases} -x-1 > -2x - 2\\ 2x > x^2 + x - 2. \end{cases}$ Answer: $\boxed{A} x < -1$ or $0 < x < 5$ $\boxed{B} x < 3$ $\boxed{C} -1 < x < 2$ $\boxed{D} \frac{1}{2} (3 - \sqrt{5}) < x < 1$ $\boxed{E} x > 2$ 2) Compute all solutions of the inequality $-2 x+1 - 3x - 3 \le 2x^2$. Answer: $\boxed{A} x \le \frac{1}{6} (3 - \sqrt{21})$ or $x \ge \frac{1}{6} (3 + \sqrt{21})$ \boxed{B} All \mathbf{R} $\boxed{C} x \le -1$ or $x \ge 1$ $\boxed{D} x \le -\frac{2}{\sqrt{3}}$ or $x \ge \frac{1}{3} (\sqrt{3} - 3)$ $\boxed{E} x \le \frac{1}{2} (-5 - \sqrt{21})$ or $x \ge \frac{1}{2} (\sqrt{13} - 1)$ 3) Compute the limit $\lim_{x \to 0^+} \frac{e^{5x} - \cos(3x)}{9x}$. Answer: $\boxed{A} \frac{1}{9}$ $\boxed{B} - \frac{5}{9}$ \boxed{C} Does not exist $\boxed{D} \frac{1}{3}$ $\boxed{E} 1$ $\boxed{F} \frac{5}{9}$ 4) Compute the limit $\lim_{x \to 0^+} -\frac{\log(x+1)}{\sin(3x)}$. Answer: $\boxed{A} 1$ $\boxed{B} - 3$ $\boxed{C} 3$ $\boxed{D} - \frac{1}{3}$ $\boxed{E} - 5$ \boxed{F} Does not exist 5) Compute the value $f'(0)$ of the derivative in $x = 0$ for the function $f(x) = \frac{x \cos(3x)}{3x + 3}$. Answer: $\boxed{A} - \frac{1}{3}$ $\boxed{B} \frac{1}{2}$ $\boxed{C} \frac{1}{3}$ $\boxed{D} 0$ $\boxed{E} 1$ 6) Find the domain of definition of the function	
2) Compute all solutions of the inequality $-2 x + 1 - 3x - 3 \le 2x^2$. Answer: $A x \le \frac{1}{6} (3 - \sqrt{21}) \text{ or } x \ge \frac{1}{6} (3 + \sqrt{21}) B$ All $R C x \le -1 \text{ or } x \ge 1 D x \le -\frac{2}{\sqrt{3}} \text{ or } x \ge \frac{1}{3} (\sqrt{3} - 3)$ $E x \le \frac{1}{2} (-5 - \sqrt{21}) \text{ or } x \ge \frac{1}{2} (\sqrt{13} - 1)$ 3) Compute the limit $\lim_{x \to 0+} \frac{e^{5x} - \cos(3x)}{9x}$. Answer: $A \frac{1}{9} B -\frac{5}{9} C$ Does not exist $D \frac{1}{3} E 1 F \frac{5}{9}$ 4) Compute the limit $\lim_{x \to 0+} -\frac{\log(x+1)}{\sin(3x)}$. Answer: $A 1 B -3 C 3 D -\frac{1}{3} E -5 F$ Does not exist 5) Compute the value $f'(0)$ of the derivative in $x = 0$ for the function $f(x) = \frac{x \cos(3x)}{3x + 3}$. Answer: $A -\frac{1}{3} B \frac{1}{2} C \frac{1}{3} D 0 E 1$	
Answer: $A = \frac{1}{6} (3 - \sqrt{21}) \text{ or } x \ge \frac{1}{6} (3 + \sqrt{21}) B$ All $R = C = x \le 1 D = x \le -\frac{2}{\sqrt{3}} \text{ or } x \ge \frac{1}{3} (\sqrt{3} - 3)$ $E = x \le \frac{1}{2} (-5 - \sqrt{21}) \text{ or } x \ge \frac{1}{2} (\sqrt{13} - 1)$ 3) Compute the limit $\lim_{x \to 0+} \frac{e^{5x} - \cos(3x)}{9x}$. Answer: $A = \frac{1}{9} = B = -\frac{5}{9} = C$ Does not exist $D = \frac{1}{3} = 1 = F = \frac{5}{9}$ 4) Compute the limit $\lim_{x \to 0+} -\frac{\log(x + 1)}{\sin(3x)}$. Answer: $A = 1 = B = -3 = C = 3 = D = -\frac{1}{3} = E = -5 = F$ Does not exist $\rightarrow T$ 5) Compute the value $f'(0)$ of the derivative in $x = 0$ for the function $f(x) = \frac{x \cos(3x)}{3x + 3}$. Answer: $A = -\frac{1}{3} = B = \frac{1}{2} = C = \frac{1}{3} = D = 0 = E = 1$	\mathbf{C}
Answer: $A \frac{1}{9}$ $B - \frac{5}{9}$ C Does not exist $D \frac{1}{3}$ $E 1$ $F \frac{5}{9}$ 4) Compute the limit $\lim_{x \to 0+} -\frac{\log(x+1)}{\sin(3x)}$. Answer: $A 1$ $B - 3$ $C 3$ $D - \frac{1}{3}$ $E - 5$ F Does not exist 5) Compute the value $f'(0)$ of the derivative in $x = 0$ for the function $f(x) = \frac{x \cos(3x)}{3x+3}$. Answer: $A - \frac{1}{3}$ $B \frac{1}{2}$ $C \frac{1}{3}$ $D 0$ $E 1$	B
4) Compute the limit $\lim_{x\to 0^+} -\frac{\log(x+1)}{\sin(3x)}$. Answer: $A \ 1 \qquad B \ -3 \qquad C \ 3 \qquad D \ -\frac{1}{3} \qquad E \ -5 \qquad F \ Does not exist \qquad \rightarrow$. 5) Compute the value $f'(0)$ of the derivative in $x = 0$ for the function $f(x) = \frac{x\cos(3x)}{3x+3}$. Answer: $A \ -\frac{1}{3} \qquad B \ \frac{1}{2} \qquad C \ \frac{1}{3} \qquad D \ 0 \qquad E \ 1 \qquad \rightarrow$ 6) Find the domain of definition of the function	\mathbf{F}
Answer: $A = 1$ $B = 3$ $C = 3$ $D = \frac{1}{3}$ $E = 5$ F Does not exist $\rightarrow 3$ 5) Compute the value $f'(0)$ of the derivative in $x = 0$ for the function $f(x) = \frac{x \cos(3x)}{3x + 3}$. Answer: $A = \frac{1}{3}$ $B = \frac{1}{2}$ $C = \frac{1}{3}$ $D = 0$ $E = 1$ $\rightarrow 3$ 6) Find the domain of definition of the function	
5) Compute the value $f'(0)$ of the derivative in $x = 0$ for the function $f(x) = \frac{x \cos(3x)}{3x + 3}$. Answer: $\boxed{A} - \frac{1}{3}$ $\boxed{B} \frac{1}{2}$ $\boxed{C} \frac{1}{3}$ $\boxed{D} 0$ $\boxed{E} 1$ \longrightarrow 6) Find the domain of definition of the function	
$f(x) = \frac{x \cos(3x)}{3x+3}.$ Answer: $A - \frac{1}{3}$ $B \frac{1}{2}$ $C \frac{1}{3}$ $D 0$ $E 1$ \rightarrow 6) Find the domain of definition of the function	\mathbf{D}
$f(x) = \frac{x \cos(3x)}{3x+3}.$ Answer: $A - \frac{1}{3}$ $B \frac{1}{2}$ $C \frac{1}{3}$ $D 0$ $E 1$ \rightarrow 6) Find the domain of definition of the function	
Answer: $A - \frac{1}{3}$ $B \frac{1}{2}$ $C \frac{1}{3}$ $D 0$ $E 1$ \rightarrow 6) Find the domain of definition of the function	
6) Find the domain of definition of the function	
	\mathbf{C}
$\left(-x-3\right)$	
Answer: $\boxed{\mathbf{A}} - 3 < x < 2$ $\boxed{\mathbf{B}} - 2 < x < \frac{3}{2}$ $\boxed{\mathbf{C}} - 3 < x < -2$ $\boxed{\mathbf{D}} x < \frac{1}{2} \text{ or } x > 2$ $\boxed{\mathbf{E}} x > -\frac{1}{2}$ \longrightarrow	\mathbf{C}
7) Compute the limit as $x \to -\infty$ of $f(x)$.	
Answer: A 4B Does not existC 2D $-\infty$ E $\frac{1}{2}$ \rightarrow	\mathbf{B}
8) Compute the value $f'(0)$ of the derivative of $f(x)$ in $x = 0$.	-
Answer: $\boxed{A} - \frac{12}{11}$ $\boxed{B} - \frac{30}{11}$ $\boxed{C} \frac{4}{3}$ $\boxed{D} \frac{13}{6}$ $\boxed{E} \frac{3}{5}$ \longrightarrow	} D
9) Which are the points of minimum of $f(x)$? Answer: $A = \frac{1}{2} \left(-1 - \sqrt{15}\right)$ $B = \frac{1}{4} \left(3\sqrt{5} - 3\right)$ $C = 1 + \sqrt{6}$ D Noo $E = \frac{1}{2} \left(5 + \sqrt{3}\right)$	\mathbf{D}
10) Which of the following graphs is closer to the graph of $f(x)$?	
Answer: A B A C C B B A C	\mathbf{C}
BONUS	

Family name:	First name:	Matr.no.:		7
For each question, choose ONE answer	and write ONLY the letter of	of that answer at the end	d of the arrow	
1) Compute all solutions of the system	of inequalities $\begin{cases} -x-1 > 1 - 2x \\ x > x^2 + x. \end{cases}$			
Answer: $\boxed{\mathbf{A}} - 2 < x < -\frac{1}{3}$ or $x > 0$	$\boxed{\mathbf{B}} x > -5 \qquad \boxed{\mathbf{C}} -1 <$	x < 0 D No x	$\boxed{\mathrm{E}} - \sqrt{2} < x < 1$	\rightarrow D
2) Compute all solutions of the inequal Answer: $A = x < -\frac{2}{3}$ or $x > 0$ $B < x < \frac{1}{2}$ $(1 - \sqrt{5})$ or $x > \frac{1}{2} (5 + \sqrt{13})$	$< -2 - \sqrt{6} \text{ or } x > \sqrt{6} - 2$ [$0] x < 1 - \sqrt{3} \text{ or } x > 2$	$\rightarrow \mathbf{E}$
3) Compute the limit $\lim_{x \to 0+} -\frac{e^{x-x^2}-1}{3x}$ Answer: A $\frac{1}{9}$ B -1		E Does not exist	\mathbf{F} $\frac{1}{3}$	
			1 3	
4) Compute the limit $\lim_{x \to 0+} -\frac{\log(1-3x)}{\sin(3x)}$ Answer: A 1 B 3	(C) = -5 D Does not	exist E -3	$F - \frac{5}{3}$	\rightarrow A
5) Compute the value $f'(0)$ of the deriv	trative in $x = 0$ for the function $f(x) = 2x \log (3x^2 + 2x)$			
Answer: $\boxed{\mathbf{A}} \ 0 \qquad \qquad \boxed{\mathbf{B}} \log(3)$	$\boxed{C} 2 \log(2)$	$\boxed{D} 2\log(3)$	$\mathbb{E}\log(2)$	$\rightarrow \mathbf{D}$
6) Find the domain of definition of the	function			
	$f(x) = \frac{e^{x^2 - 2x + 1}}{x}.$			
Answer: $\boxed{\mathbf{A}}$ All \mathbb{R} $\boxed{\mathbf{B}} x \leq 0$		$\boxed{D} x > 0$	$\boxed{\mathbf{E}} x \neq 0$	$\longrightarrow \mathbf{E}$
7) Compute the limit as $x \to 0$ of $f(x)$.				
Answer: A Does not exist	B -1 C 1	D 0	$\mathbf{E} - \infty$	$\longrightarrow \mathbf{A}$
8) Compute the value $f'(0)$ of the deriv	vative of $f(x)$ in $x = 0$.			
Answer: A Non definita	$\mathbf{B} 5 e \qquad \qquad \mathbf{C} - 3 e$	De	E 2e	$\longrightarrow \mathbf{A}$
9) Which are the points of minimum of				
Answer: $\boxed{\mathbf{A}} x = \frac{1}{2} \left(-1 - \sqrt{3} \right) \qquad \boxed{\mathbf{B}}$		$\frac{1}{2}\left(1+\sqrt{3}\right) \qquad \boxed{\mathbf{D}} x =$	E Noo	\rightarrow C
10) Which of the following graphs is clo	oser to the graph of $f(x)$?			
				$\rightarrow \mathbf{B}$
Answer: A B /	-•) •	D		
			BON	US

Family name:	First name:		Matr.no.	:	8
For each question, choose ONE an	nswer and write ON	LY the letter of	that answer at the	end of the arrow	
1) Compute all solutions of the sy		$x + x - 2 < -2x^{2}$ 1 - 2x - 1.			
Answer: $\boxed{\mathbf{A}} \ 0 \le x < \frac{1}{8} \left(\sqrt{33} - 1\right)$	$\boxed{\mathbf{B}} \ 0 \le x < \frac{1}{8} \left(\right.$	$\sqrt{41} - 3$) C	$-2 \le x \le 0$ D M	No x $\boxed{\mathbf{E}} \ 0 \le x < 1$	$\rightarrow \mathbf{A}$
2) Compute all solutions of the in Answer: $\boxed{\mathbf{A}} - \sqrt{3} \boxed{\mathbf{B}} - \sqrt{2} \le x \le x \le \frac{1}{4} (\sqrt{33} - 3)$			$\overline{(5)} D 0 \le x \le \sqrt{2}$	$\boxed{\mathbf{E}} x \le \frac{1}{4} \left(-3 - \sqrt{33} \right) \text{ or }$	\rightarrow C
3) Compute the limit $\lim_{x \to 0} -\frac{\sin(5)}{e^{-3x}}$ Answer: A -3 B $\frac{5}{3}$	$\frac{x)}{-1}$. C -1	D -5	E 5 F	Does not exist	\rightarrow B
4) Compute the limit $\lim_{x \to 0^-} \frac{\sin (x)}{3x - 3x - 3x - 3x}$ Answer: A $\frac{2}{3}$ B $\frac{1}{5}$	$\frac{-x^2)}{2x^3}.$ $\boxed{C} \frac{1}{7}$	D $\frac{1}{3}$	E Does not exist	F ² / ₇	\rightarrow D
5) Compute the value $f'(0)$ of the	e derivative in $x = 0$) for the function			
		$x) = \frac{\sin(-x)}{x^2 + 3}.$			
Answer: $\boxed{\mathbf{A}} - \frac{1}{3}$	$\frac{2}{3}$	C 0	\boxed{D} $\frac{1}{2}$	E -1	$\rightarrow \mathbf{A}$
6) Find the domain of definition of	of the function				
	f(x	$e^{x+\frac{1}{x+1}-2}.$			
		$x \neq -\frac{3}{7}$	$\boxed{\mathrm{D}} x \neq \frac{1}{9}$	$\boxed{\mathbf{E}} x \neq \frac{1}{7}$	$\longrightarrow \mathbf{A}$
7) Compute the limit as $x \to +\infty$ Answer: A 1 B -		0	$D + \infty$	\mathbf{E} $-\infty$	$\longrightarrow \mathbf{D}$
8) Compute the value $f'(0)$ of the Answer: $A - 2e^{3/2}$	e derivative of $f(x)$ $\underline{B} \frac{5\sqrt{e}}{4}$	in $x = 0$. C 0	$\boxed{\mathrm{D}} - \frac{3\sqrt{e}}{2}$	$\boxed{\mathrm{E}} \frac{9}{4e^{3/2}}$	\rightarrow C
	$(4+\sqrt{2})$ C x	_ 、 /	$\boxed{D} x = -1$	$\underline{\mathbf{E}} \ x = \frac{1}{2} \left(-1 - \sqrt{2} \right)$	$\rightarrow \mathbf{A}$
10) Which of the following graphs	s is closer to the gra	ph of $f(x)$?		00 70	
Answer: A			- D	E	$\rightarrow \mathbf{B}$
				BONU	JS

Family name:	First r			r.no.:	9
For each question, choos	e ONE answer and wri	te ONLY the letter	of that answer at	the end of the arrow	
1) Compute all solutions	° -,				
	ſ	$ 1 - x - 2x \le -2$ $-x^2 + x + 1 > 1 -$	3x.		
Answer: $\boxed{\mathbf{A}} x \ge 1$	$\boxed{\mathbf{B}} \ 1 \le x < 4$	$\boxed{\mathbf{C}} x \ge \frac{5}{3}$	$\boxed{D} \ \frac{2}{3} \le x < 4$	$\boxed{\mathbf{E}} -3 < x \le -\frac{2}{3}$	$\rightarrow \mathbf{B}$
2) Compute all solutions Answer: $A = x < -\sqrt{2}$ of				$(3 - \sqrt{21}) < x < \frac{1}{2} (3 + \sqrt{21})$	\rightarrow B
D $x < \frac{1}{3}(-1 - \sqrt{7})$ or	$x > \frac{2}{\sqrt{3}}$	$\boxed{\mathbf{E}} x < \frac{1}{2} \left(-3 \right)$	$(3 - \sqrt{5}) \text{ or } x > \frac{1}{2}$	$(3 - \sqrt{21}) < x < \frac{1}{2} (3 + \sqrt{21})$ $(1 + \sqrt{13})$	
3) Compute the limit $\lim_{x \to a} x = 1$					
Answer: $A - \frac{1}{3}$	$B \frac{1}{9} \qquad C \frac{1}{3}$	D $\frac{5}{3}$	\mathbb{E} $\frac{5}{9}$	F Does not exist	$\longrightarrow \mathbf{B}$
4) Compute the limit $\lim_{x \to \infty} x = 1$					
Answer: $\left \mathbf{A} \right \frac{1}{3}$	$\mathbf{B} - \frac{1}{5} \qquad \mathbf{C} \frac{3}{5}$	D -3	\mathbf{E} -1	F Does not exist	\rightarrow C
5) Compute the value f'	(0) of the derivative in	x = 0 for the func	tion		
	f(x) =	$x \log (\exp(-3x) +$	$4x^2+2\big).$		
Answer: $\boxed{\mathbf{A}} \log(2)$	$\boxed{\mathrm{B}}\log(3)$	$\boxed{C}\log(4)$	$D\log(5)$	$E \log(6)$	$\longrightarrow \mathbf{B}$
6) Find the domain of de	efinition of the function	L			
, ,					
		$f(x) = \frac{e^{1-x^2}}{1-x}.$			
Answer: $A \neq 0$	$\boxed{\mathbf{B}} x \neq -1$	\bigcirc All \mathbb{R}	$\boxed{D} x \le 0$	$\boxed{\mathbf{E}} \ x \neq 1$	$\longrightarrow \mathbf{E}$
7) Compute the limit as					
Answer: A 0	$B - \infty$	C 1	$D + \infty$	$ \mathbf{E} - 1$	\rightarrow D
8) Compute the value f'	(0) of the derivative of	f(x) in $x = 0$.			
Answer: $A 2e$	B - e	$\boxed{\mathrm{C}} e$	D 4e	$\boxed{\mathrm{E}}$ -4e	\rightarrow C
9) Which are the points	of minimum of $f(x)$?				
Answer: A $x = -\sqrt{\frac{3}{2}}$	B Noo C	$x = \frac{1}{12} \left(\sqrt{73} - 5\right)$	$\boxed{\mathbf{D}} x = \frac{1}{2} \left(\sqrt{1} \right)$	$\overline{3} - 1$) $\boxed{\mathbf{E}} x = \frac{1}{\sqrt{2}}$	$\longrightarrow \mathbf{B}$
10) Which of the following	ng graphs is closer to the	he graph of $f(x)$?			
		-			
Answer: A	B		5 D	E	$\rightarrow \mathbf{A}$
				BON	IUS

Family name:	First name:		r.no.:	10
For each question, choose ONE answer	and write ONLY the letter	r of that answer at	the end of the arrow	
1) Compute all solutions of the system	of inequalities $\begin{cases} -x-1 > -2x - x - x - 2x - x - 2x - x - 2x - 2$	- 2 2.		
Answer: A $x < -\sqrt{\frac{2}{3}}$ or $\sqrt{\frac{2}{3}} < x <$	$2 \boxed{\mathbf{B}} 2 - \sqrt{2} < x < 3 \boxed{\mathbf{C}}$	x < 0 D $x < -1$	or $-\frac{1}{3} < x < \frac{2}{3}$ E $x > -1$	$\rightarrow \mathbf{E}$
2) Compute all solutions of the inequal Answer: $A \le 0$ or $x \ge 1$ $B x \ge \frac{1}{3}$		$) x \le -2 \text{ or } x \ge \frac{1}{2}$	$\left(\sqrt{5}-1\right) \boxed{\mathbf{E}} - \sqrt{2} \le x \le 0$	$ ightarrow {f E}$
3) Compute the limit $\lim_{x \to 0^-} \frac{\sin(5x)}{e^{-x} - 1}$. Answer: A -5 B $-\frac{5}{3}$	C Does not exist	D -1	$E - \frac{1}{3}$ $F 1$	\rightarrow A
4) Compute the limit $\lim_{x \to 0} \frac{2x^3 + x^2}{1 - \cos(x)}$.				
Answer: $A \frac{2}{25}$ $B \frac{4}{25}$	C Does not exist	D 4	$E 2 F \frac{2}{49}$	$\rightarrow \mathbf{E}$
5) Compute the value $f'(0)$ of the deriv	vative in $x = 0$ for the func	etion		
	$f(x) = \left(x^2 + 1\right)\cos\left(x\right)$	$x-rac{\pi}{2}\Big)$.		
Answer: $\boxed{\mathbf{A}}$ 1 $\boxed{\mathbf{B}}$ -3	C -2	D -1	E 2	$\rightarrow \mathbf{A}$
6) Find the domain of definition of the				
	$f(x) = \frac{e^{-x^2 - x + x}}{1 - 3x}$	<u>1</u>		
Answer: $A \le 0$ $B x \neq -$	-1 $C x \neq -\frac{1}{3}$	\bigcirc All \mathbb{R}	$\boxed{\mathbf{E}} x \neq \frac{1}{3}$	$\rightarrow \mathbf{E}$
7) Compute the limit as $x \to \frac{1}{3}$ of $f(z)$	<i>x</i>).			
Answer: $A + \infty$ $B - 1$	$\bigcirc 0$	$D - \infty$	\mathbf{E} 1	$\longrightarrow \mathbf{A}$
8) Compute the value $f'(0)$ of the derivative Answer: A 4e B 2e	_	D –3e	E Non definita	$\rightarrow \mathbf{B}$
9) Which are the points of minimum of	f(x)?		—	
Answer: $\boxed{\mathbf{A}} x = 0$ $\boxed{\mathbf{B}} x = \frac{1}{6} \left(2 + \frac{1}{6}\right)$		$\mathbf{D} \ x = \frac{1}{2} \left(2 - \sqrt{2} \right)$	$\boxed{\mathbf{E}} x = \frac{1}{2} \left(\sqrt{3} - 1 \right)$	$\rightarrow \mathbf{C}$
10) Which of the following graphs is clo	be observed to the graph of $f(x)$?	Jae		
				T
Answer: A B			E	$\rightarrow \mathbf{B}$
			BONU	JS

Family name: For each question, choos	First a			atr.no.:	11
1) Compute all solutions	s of the system of inequ				
Answer: $A > 2$	$\boxed{\mathbf{B}} \ 2 \le x < 4$	\bigcirc No x	$\boxed{D} x > 1 \text{or} x$	≤ 0 $\boxed{\mathbb{E}} \ x \leq -3$	$\rightarrow \mathbf{C}$
2) Compute all solutions Answer: A $\frac{1}{2}(3 - \sqrt{15})$ D $1 - \sqrt{5} \le x \le 2 + \sqrt{15}$				$\left \frac{1}{2}\left(1-\sqrt{5}\right) \le x \le \frac{1}{2}\left(\sqrt{29}-3\right)\right $) →C
3) Compute the limit $\lim_{x \to a} x^{-1}$ Answer: A Does not e		\boxed{C} $-\frac{1}{9}$	D $\frac{1}{3}$	\mathbb{E} $\frac{1}{9}$ \mathbb{F} -1	→B
4) Compute the limit $\lim_{x \to 0} \frac{1}{7}$	$ \underset{\rightarrow 0^{-}}{\overset{\min}{\frac{1}{x^3 + 3x}}} \frac{\sin \left(x - x^2\right)}{x^3 + 3x}. $ $ \boxed{\text{B}} \frac{1}{5} \qquad \boxed{\text{C}} \frac{2}{5} $	D $\frac{1}{3}$	\mathbb{E} $\frac{2}{7}$	F Does not exist	→D
5) Compute the value f		,			
	f	$(x) = \log\left(1 + \frac{1}{2}\right)$	$\left(-\frac{x}{2x+1}\right)$.		
Answer: A 7	B 3	C 4	D 1	E 6	$\longrightarrow \mathbf{D}$
6) Find the domain of d	efinition of the function	n			
		$f(x) = e^{-x}$	$+\frac{1}{x-2}+1$.		
Answer: A $x \neq \frac{1}{3}$	$\boxed{\mathbf{B}} x \neq \frac{7}{9}$	$\boxed{\mathbf{C}} x \neq 2$	D $x \neq -\frac{3}{7}$	$E x \neq -\frac{3}{8}$	\longrightarrow C
7) Compute the limit as Answer: $\boxed{\mathbf{A}} + \infty$	$x \to -\infty$ of $f(x)$. B 1	$C -\infty$	D 0	E -1	$ ightarrow \mathbf{A}$
8) Compute the value f Answer: A $\frac{3}{4e^{3/2}}$	(0) of the derivative of $B e$	$f(x) \text{ in } x = 0$ $C -2e^{5/3}$). $\boxed{\mathbf{D}} - \frac{5\sqrt{e}}{4}$	$\boxed{\mathrm{E}} \frac{7}{4e^{3/2}}$	$\longrightarrow \mathbf{D}$
9) Which are the points Answer: $A = 2$	B Noo C $x = \frac{1}{2}$. ,		$\boxed{\mathbf{E}} x = \frac{1}{2} \left(-4 - \sqrt{2} \right)$	$\rightarrow \mathbf{B}$
10) Which of the followi	ng graphs is closer to t	he graph of f			
				BOI	NUS

Family name:	First na	ame:		Matr.no.:		12
For each question, choose ON	E answer and write	e ONLY the let	ter of that answ	er at the end o	of the arrow	
1) Compute all solutions of the	· · · ·	lities $-x - 2 \le x^2 - x^2$ $2x - 3 > -2x - x^2 $	x - 1 .			
Answer: $\boxed{\mathbf{A}} \sqrt{6} - 2 \le x < 2$	\blacksquare No x	$\boxed{\mathbf{C}} x > 4$	$\boxed{\mathbf{D}} x = 1$	$\boxed{\mathbf{E}} - \frac{1}{3} < x$	$\leq \frac{1}{2} \left(1 + \sqrt{5} \right)$	$\rightarrow \mathbf{B}$
2) Compute all solutions of the Answer: $\boxed{\mathbf{A}} x < \frac{1}{3} \left(-2 - \sqrt{3} x > \sqrt{6}\right)$				$x = 1 - \sqrt{7}$ or $x \ge 1$	> 4 $\boxed{\mathrm{E}} x < -\sqrt{6} \mathrm{c}$	or $\rightarrow \mathbf{B}$
3) Compute the limit $\lim_{x \to 0} \frac{e^{3x}}{4}$ Answer: $\boxed{\mathbf{A}} - \frac{1}{3}$ $\boxed{\mathbf{B}}$	$\frac{-\cos(3x)}{9x}.$ $\frac{1}{3} \qquad \boxed{C} -\frac{5}{9}$	DD	es not exist	E $\frac{5}{3}$	\mathbf{F} $\frac{1}{9}$	$\rightarrow B$
4) Compute the limit $\lim_{x \to 0^-} -$ Answer: A Does not exist	$\frac{\log(x+1)}{\sin(3x)}.$ $\boxed{B} \frac{1}{3}$	C -5	D -3	E 1	$\overline{F} - \frac{1}{3}$	$ ightarrow \mathbf{F}$
5) Compute the value $f'(0)$ o	f the derivative in a	x = 0 for the fu	nction			
		$f(x) = \frac{\exp(x)}{4x}$				
Answer: $\boxed{\mathbf{A}} \frac{3}{4}$	B $-\frac{1}{9}$	C $\frac{7}{16}$	$\boxed{\mathrm{D}} - \frac{4}{9}$		$\boxed{\mathrm{E}} \frac{1}{4}$	$\rightarrow \mathbf{B}$
6) Find the domain of definit	ion of the function					
		$f(x) = \frac{e^{x^2 + x}}{3x + x^2}$	$\frac{+1}{1}$.			
Answer: $A \neq -\frac{1}{3}$	$\boxed{\mathbf{B}} x \neq -1$	$\boxed{\mathbf{C}} x \le 0$	$\boxed{\mathrm{D}} x$	$\neq 0$	$\boxed{\mathbf{E}} \ x \neq 1$	$\longrightarrow \mathbf{A}$
7) Compute the limit as $x \to$		_			_	-
Answer: $\boxed{\mathbf{A}} - 1$	$ \mathbf{B} - \infty$	C 0	D 1	E	$2 + \infty$	$\rightarrow \mathbf{B}$
8) Compute the value $f'(0)$ of Answer: $A e B$	_	$f(x) \text{ in } x = 0.$ $\boxed{25e}$	D –2e	E Non	definita	$\longrightarrow \mathbf{D}$
9) Which are the points of m Answer: A $x = \frac{1}{2}(\sqrt{2} - 2)$		$\overline{34}) \boxed{\mathbf{C}} x = \frac{1}{6}$	$\left(-2-\sqrt{34}\right)$	$\boxed{\mathbf{D}} x = \frac{1}{12} \left(\sqrt{2} \right)$	$\overline{73} - 5$) E Noo	$\rightarrow \mathbf{D}$
10) Which of the following gr	aphs is closer to the	e graph of $f(x)$?			
Answer: A	В		D	-1 2	E /	\rightarrow D
					BO	NUS

Family name:	First 1			r.no.:	13
For each question, choose	e ONE answer and wri	te ONLY the letter	of that answer at	the end of the arrow	
1) Compute all solutions	• -	alities $\begin{cases} x^2 + x - 2 < x^2 \\ -x \ge 2x - 1 + 1 \end{cases}$	L.		
Answer: $\boxed{\mathbf{A}} - 1 < x \leq$	$0 \qquad \boxed{\mathbf{B}} -\frac{2}{3} \le x < -$	$-\frac{1}{3}$ C No x	$\boxed{D} \frac{1}{3} \le x \le$	$1 \qquad \boxed{\mathbf{E}} \ 0 \le x \le \frac{2}{3}$	$\longrightarrow \mathbf{C}$
2) Compute all solutions Answer: A $x < 3$ or x E $x < -\sqrt{10}$ or $x > 4$	$>3 \qquad \boxed{\mathbf{B}} \ x < \frac{1}{6} \left(-1 + \frac{1}{6}\right)$			x < -6 or x > 2 D All	$\mathbf{R} \longrightarrow \mathbf{D}$
3) Compute the limit $\lim_{x \to 0} 1$, , , , , , , , , , , , , , , , , , ,	$\mathbb{D} \infty$	\mathbb{E} $-\frac{1}{2}$	F Does not exist	$ ightarrow \mathbf{D}$
4) Compute the limit $\lim_{x \to a} x^{-1}$ Answer: A -3		es not exist	D -5	E 5 F $\frac{5}{3}$	$ ightarrow {f E}$
5) Compute the value f	'(0) of the derivative in	x = 0 for the funct	tion		
o) compare en tana j		$f(x) = \frac{\exp(-2x) + 2x + 4}{2x + 4}$			
Answer: $A \frac{2}{9}$	$\boxed{\mathrm{B}} - \frac{5}{8}$	\boxed{C} $-\frac{3}{8}$	D $\frac{1}{3}$	E -2	$\longrightarrow \mathbf{B}$
6) Find the domain of d	efinition of the function	1			
		$f(x) = e^{-2x + \frac{1}{-2x-2}}$	$^{-2}$.		
Answer: A $x \neq -1$	$\boxed{\mathbf{B}} x \neq -\frac{2}{7}$	$\boxed{\mathbf{C}} x \neq -\frac{1}{10}$	$\boxed{D} x \neq \frac{9}{10}$	$\boxed{\mathbf{E}} \ x \neq \frac{1}{8}$	$\rightarrow \mathbf{A}$
7) Compute the limit as Answer: A 0	$x \to +\infty \text{ of } f(x).$ B $+\infty$	C $-\infty$	D -1	E 1	\longrightarrow A
8) Compute the value f	$V(0)$ of the derivative of $B \frac{3e^{3/2}}{4}$	· · ·	D3_	F _ 7	$\rightarrow \mathbf{D}$
Answer: $[A] - \frac{5}{2e^{5/2}}$ 9) Which are the points	Ŧ	C $\frac{4}{e}$	$\boxed{\mathrm{D}} - \frac{3}{2e^{5/2}}$	$\left \mathrm{E}\right - rac{7}{4e^{5/2}}$	
	B $x = \frac{1}{2} \left(1 - \sqrt{2} \right)$	$\boxed{\mathbf{C}} x = \frac{1}{2} \left(\mathbf{v} \right)$	$\sqrt{2} - 2$) D	$x = 2 \qquad \boxed{\mathbb{E}} \ x = \frac{3}{2}$	$\rightarrow \mathbf{A}$
10) Which of the following $\frac{1}{2}$	ng graphs is closer to t	he graph of $f(x)$?	1	. • I	
Answer: A	B				$\to \mathbf{E}$
				BC	DNUS

Family name:	First			Matr.no.: er at the end of the arrow	14
	ions of the system of inequ			er at the end of the arrow	
Answer: A $x < \frac{1}{3}$ (D $\frac{1}{2} (3 - \sqrt{13}) < x$	$-2 - \sqrt{7}$) or $\frac{1}{3}(\sqrt{7} - 2)$ $x < \frac{1}{2}(3 + \sqrt{13})$	< x < 5	$ \begin{array}{c} \text{B} \\ \frac{1}{2} \left(3 - \sqrt{17} \right) \\ -5 < x < -\frac{4}{3} \end{array} $	$< x < \frac{2}{3}$ C $2 - \sqrt{3} <$ or $x > 0$	$x < 1 \longrightarrow \mathbf{B}$
	ions of the inequality $x^2 <$ B $\frac{1}{2} \left(-3 - \sqrt{17} \right) < x <$			-4 < x < 1 E 0 < x <	$\frac{1}{4} \longrightarrow \mathbf{D}$
3) Compute the limit Answer: $\boxed{\mathbf{A}} - 1$	$\lim_{x \to 0+} \frac{e^{-3x^2 - 3x} - 1}{3x}.$ B Does not exist	C $\frac{1}{3}$	\boxed{D} $-\frac{1}{9}$	E 1 F $-\frac{1}{3}$	$\rightarrow \mathbf{A}$
4) Compute the limit Answer: A 3	$\lim_{x \to 0+} -\frac{\log(x+1)}{\sin(x)}.$ B 5 C -3	D -5	E -1	F Does not exist	$ ightarrow {f E}$
5) Compute the value	e $f'(0)$ of the derivative in	$a x = 0 \text{ for the fu}$ $(x) = x \cos\left(x^2 + \frac{1}{2}\right)$			
		$(x) = x \cos(x + $	$x-\frac{1}{2}$).	_	
Answer: A 1	B 0	C 2	D -2	\mathbb{E} -1	$\rightarrow \mathbf{B}$
6) Find the domain of	of definition of the functio		~ 1)		
	f($x) = 2x + \log\left(\frac{-1}{2}\right)$	$\left(\frac{2x-4}{2x-1}\right)$.		
Answer: $\boxed{\mathbf{A}} - 4 < x$ 7) Compute the limit		$-1 \qquad \boxed{\mathbb{C}} -4 < x$	$x < \frac{1}{2}$ D 1 <	x < 2 E $x < 1$ or $x >$	$2 \longrightarrow \mathbf{C}$
Answer: $A - 1$		C $-\frac{1}{2}$	$D - \frac{1}{8}$	E Does not exist	$\longrightarrow \mathbf{E}$
8) Compute the value Answer: A $\frac{1}{3}$	e $f'(0)$ of the derivative of $\boxed{\mathbf{B}} \frac{17}{4}$	$f(x) \text{ in } x = 0.$ $\boxed{C} -\frac{15}{8}$	D 5	E $\frac{7}{3}$	$\rightarrow \mathbf{B}$
	nts of minimum of $f(x)$? 1 + $\sqrt{35}$ B $x = -1$ -	$\sqrt{2}$ C $x = \frac{1}{2}$	$\frac{1}{2}\left(\sqrt{3}-7\right)$ D) Noo $\boxed{\mathbf{E}} x = \frac{1}{4} \left(1 - \sqrt{2} \right)$	$\overline{1}$) \longrightarrow \mathbf{D}
10) Which of the foll	owing graphs is closer to t	the graph of $f(x)$?		
Answer: A	B	-15 2 4	D		$\rightarrow E$
					BONUS

Family name:	First name:		Matr.no.:		15
For each question, choose ONE	answer and write ONLY the	ne letter of that an	swer at the end of	the arrow	
1) Compute all solutions of the	system of inequalities $\begin{cases} x+1 +2\\ x^2+x+1 \end{cases}$	$\begin{aligned} x &\le -2\\ > 1 - 3x. \end{aligned}$			
Answer: $A x > 1$ or $x \le 0$	$\boxed{B} - 3 < x \le -1$	$\boxed{\mathbf{C}} x \le -5$	D $0 < x < 1$	$\boxed{\mathbf{E}} x < -4$	$ ightarrow \mathbf{E}$
2) Compute all solutions of the	inequality $3x^2 < -2 - x +$	-2x+2 .			
Answer: A $\frac{1}{4}(-1-\sqrt{41}) < x$ C $\frac{1}{2}(-3-\sqrt{13}) < x < \frac{1}{2}(1+\frac{1}{2})$			$ \begin{array}{c} \hline B \\ \hline 4 \\ \sqrt{33} \end{array} \begin{array}{c} 1 \\ \hline 4 \\ \hline 3 \end{array} \begin{array}{c} - \sqrt{33} \end{array} $	$ < x < \frac{1}{4} \left(3 + \sqrt{33} \right) $ 1 < x < 0	$\rightarrow \mathbf{E}$
2) Compute the limit $\lim_{x \to \infty} x$	$-x^2$				
3) Compute the limit $\lim_{x \to 0^-} \frac{x}{x+1}$			_		D
Answer: A 1 B $\frac{1}{2}$	C Does not exist	$D - \infty$	E -1	$\left[F \right] - \frac{1}{2}$	$\rightarrow \mathbf{B}$
	r^2				
4) Compute the limit $\lim_{x \to 0} \frac{x^3 + x^3}{1 - cc}$	$\frac{x}{\operatorname{os}(x)}$.				
Answer: $A \frac{4}{49}$ $B \frac{4}{9}$		$\frac{2}{25}$ E 2	F Does r	not exist	$\rightarrow \mathbf{E}$
5) Compute the value $f'(0)$ of the function	the derivative in $x = 0$ for t	he function			
	$f(x) = \cos(-x)$	$x\exp(x) + \pi$).			
Answer: $A - 2$	B -1 C 0	D	2 E] 1 .	$\rightarrow \mathbf{C}$
6) Find the domain of definition	of the function				
	$f(x) = 2\log\left(\frac{1}{2}\right)$	$-x^2-x+3\big).$			
Answer: $\boxed{\mathbf{A}} - 2 < x < 1$ $\boxed{\mathbf{E}} \frac{1}{2} \left(1 - \sqrt{13}\right) < x < \frac{1}{2} \left(1 + \sqrt{13}\right)$	$\boxed{\text{B}} x < 1 \text{ or } x > 2$ (13)	$\boxed{\mathbf{C}} x \neq 0$	$\boxed{\mathbf{D}} \ \frac{1}{2} \left(-1 - \sqrt{13} \right) <$	$< x < \frac{1}{2} \left(\sqrt{13} - 1 \right) $	$\rightarrow \mathbf{D}$
7) Compute the limit as $x \to -\infty$	∞ of $f(x)$.				
Answer: $A + \infty$ B	Does not exist	C 1	$D - \infty$	E 0	$\rightarrow \mathbf{B}$
8) Compute the value $f'(0)$ of the value $f'(0)$	ne derivative of $f(x)$ in $x =$	= 0.			
Answer: A 1 B	-3 C -1	D –	$\frac{2}{3}$ E	-2	$\rightarrow \mathbf{D}$
9) Which are the points of mini:	num of $f(x)$?				
,		D x =	$-\frac{3}{2}$ E a	$c = -\frac{1}{6}$	$\rightarrow \mathbf{A}$
10) Which of the following grap	ns is closer to the graph of	f(x)?			
		16	. /		
Answer: A	3 I +) C +	<u> </u>	-2 -1 1 2 3 4	-14 -20	$\rightarrow \mathbf{A}$
				BONUS	

Family name:		name:	Matr.r		16
For each question, choose	ONE answer and w	rite ONLY the lett	er of that answer at th	he end of the arrow	
1) Compute all solutions o	f the system of inec	$\begin{cases} ualities\\ x + 1 + 2x \le 1\\ x^2 + x + 2 > 2 - \end{cases}$	- 3x.		
Answer: $A x < -4$	$\boxed{\mathbf{B}} x > 3$	$\boxed{\mathbf{C}} x > 0$	$\boxed{D} x \le -5$	$\boxed{\mathbf{E}} \ 0 < x < 1$	$\longrightarrow \mathbf{A}$
2) Compute all solutions of Answer: A All R B $x \le x \ge \frac{1}{3} (\sqrt{10} - 2)$		$\sqrt{2} - 1 \ \boxed{C} \ \frac{1}{2} (1 - \sqrt{2})$		$\overline{1}$ D $x \le \frac{1}{3} (-2 - \sqrt{10})$ or	\rightarrow A
3) Compute the limit $\lim_{x \to 0^-}$ Answer: A $\frac{5}{9}$ B	$\left[-\frac{e^{-x}-\cos(x)}{9x}\right]$	$\frac{1}{3}$ D 1	E Does not exi	st $\overline{\mathbf{F}} - \frac{1}{9}$	$\rightarrow \mathbf{F}$
4) Compute the limit $\lim_{x \to 0}$ Answer: A 5 B	$\frac{\log(5x+1)}{x-x^2}.$ $\left] -\frac{1}{3} \qquad \boxed{C} - \frac{1}{3}$	-3 D 1	E Does not ex	dist $F\frac{5}{3}$	\rightarrow A
5) Compute the value $f'(0)$) of the derivative i	n $x = 0$ for the fur	nction		
, - , , , , , , , , , , , , , , , , , , ,	, ,	$f(x) = x \cos\left(4x^2 + \frac{1}{2}\right)$			
Answer: A 1	B 2	C 0	D -2	\mathbf{E} -1	$\longrightarrow \mathbf{A}$
6) Find the domain of defi	nition of the function	on			
		$f(x) = \frac{e^{x^2 - 2x}}{1 - 3x}$	$\frac{x^{+1}}{x}$.		
Answer: $A \neq \frac{1}{3}$	$\boxed{\mathbf{B}} x \neq 1$	$\boxed{\mathbf{C}} \ x > 0$	\mathbb{D} All \mathbb{R}	$E x \neq -\frac{1}{3}$	$\longrightarrow \mathbf{A}$
7) Compute the limit as x	$\rightarrow \frac{1}{3}$ of $f(x)$.				
Answer: A 1	$B - \infty$	C -1	$D + \infty$	\mathbf{E} 0	$\rightarrow \mathbf{D}$
8) Compute the value $f'(0)$) of the derivative of	of $f(x)$ in $x = 0$.			
Answer: $\boxed{\mathbf{A}} - 4e$	$\boxed{\mathbf{B}} e$	C –3 e	\boxed{D} 3e	E Non definita	$\rightarrow \mathbf{B}$
9) Which are the points of Answer: $A = \frac{1}{c} (2 + \sqrt{c})$		$\sqrt{22}$) C $x = \frac{1}{c} (\sqrt{1})$	$(9-1)$ D $x = \frac{1}{2}(\sqrt{3} - 1)$	$(-1) \to x = \frac{1}{12} (-1 - \sqrt{97})$	$\longrightarrow \mathbf{B}$
10) Which of the following				, <u> </u>	
Answer: A					\rightarrow C
				BON	US

Family name:		name:		/latr.no.:		17
For each question, choo	ose ONE answer and wr	ite ONLY the lette	er of that answer	at the end	d of the arrow	
1) Compute all solution		ualities $\begin{cases} 2x^2 - x - 2 < -2 \\ -x \ge -2x - 1 \end{cases}$	$2x^2 + 1.$			
Answer: $\boxed{A} \frac{1}{6} \left(-3 - \sqrt{2}\right)$	$\sqrt{33} \Big) < x \le 0 \boxed{\mathbf{B}} -1 \le x$	$x < -\frac{1}{3} \boxed{\mathbb{C}}$ No x	$D \frac{1}{8} \left(1 - \sqrt{33} \right) <$	$x \le 0 $ E	$\frac{1}{3} \le x < \frac{1}{8} \left(\sqrt{33} - 1 \right)$	$\rightarrow \mathbf{C}$
	ins of the inequality $-2 \mid$ $-\sqrt{13}$) or $x > \frac{1}{2} \left(\sqrt{21} - 0\right)$ or $x > \frac{1}{6} \left(\sqrt{37} - 1\right)$				$\boxed{\mathbf{C}} \ x < 0 \text{ or } x > 1$	$\rightarrow \mathbf{D}$
3) Compute the limit x	$\lim_{x \to 0+} \frac{\sin(3x)}{e^{-3x} - 1}.$					
Answer: $\boxed{\mathbf{A}} - 3$	B Does not exist	C -5	D $-\frac{5}{3}$	$E \frac{5}{3}$	\mathbf{F} -1	\longrightarrow F
4) Compute the limit x	$\lim_{x \to 0+} \frac{x^3 + x^2}{\sin(x^2)}.$					
Answer: $\boxed{\mathbf{A}} - \frac{3}{5}$		bes not exist	D $\frac{1}{3}$	\mathbb{E} $\frac{1}{5}$	\mathbf{F} $-\frac{1}{5}$	$\rightarrow \mathbf{B}$
5) Compute the value .	f'(0) of the derivative in	x = 0 for the fun	ction			
	f	$f(x) = \log\left(1 + \frac{1}{2x}\right)$	$\left(\frac{x}{x+1}\right)$.			
Answer: A 6	B 3	C 7	D 4		E 1	$\longrightarrow \mathbf{E}$
6) Find the domain of	definition of the functio	n				
		$f(x) = -\frac{e^{-x^2 - 2x}}{x}$	$\xrightarrow{x+1}$.			
Answer: $A \neq 1$	\square All \mathbb{R}	$\boxed{\mathbf{C}} x \neq 0$	$D x \neq -\frac{1}{3}$		$\boxed{\mathbf{E}} \ x \neq -1$	$\rightarrow \mathbf{C}$
7) Compute the limit a	s $x \to 0-$ of $f(x)$.					
Answer: A 1	$B - \infty$	C -1	D 0		$E + \infty$	$\longrightarrow \mathbf{E}$
8) Compute the value	f'(0) of the derivative of	f $f(x)$ in $x = 0$.				
Answer: $A - e$	B Non definita	C 5e	D - 2	e	E - 3e	$\longrightarrow \mathbf{B}$
9) Which are the point Answer: $A = 2$	s of minimum of $f(x)$? B $x = 0$	$\boxed{\mathbf{C}} x = -1$	D Noo	$\boxed{\mathrm{E}} x =$	$=\frac{1}{2}\left(1+\sqrt{3}\right)$	$\longrightarrow \mathbf{D}$
10) Which of the follow	ving graphs is closer to t	the graph of $f(x)$?				
			······································			
Answer: A		• C	D	4	E	$\rightarrow D$
					BON	$\cup \mathbf{S}$

Family name:	First name:	Matr.n	.0.:	18
For each question, choose ONE	answer and write ONLY th	he letter of that answer at th	e end of the arrow	
1) Compute all solutions of the	system of inequalities $\begin{cases} -x-1 > \\ 2x > x^2 + \end{cases}$	> 2x + 1 - x - 2.		
Answer: $\boxed{\mathbf{A}} - 2 < x < -1$ or $\boxed{\mathbf{E}} x < \frac{1}{3} \left(-2 - \sqrt{7}\right)$ or $\frac{1}{3} \left(\sqrt{3}\right)$		$\boxed{\mathbb{C}} \ 1 < x < 2 \qquad \boxed{\mathbb{D}}$	$-1 < x < -\frac{1}{\sqrt{3}}$ or $x > \frac{1}{\sqrt{3}}$	$\longrightarrow \mathbf{B}$
2) Compute all solutions of the Answer: $\boxed{\mathbf{A}} x \leq \frac{1}{4} \left(-3 - \sqrt{41} x \geq \frac{1}{4} \left(\sqrt{41} - 5\right)\right)$			$+\sqrt{41}$ C $x \le -2$ or $x \le \sqrt{3}$	$\rightarrow \mathbf{E}$
3) Compute the limit $\lim_{x \to 0+} \frac{e^x}{2}$. Answer: A -1 B -		$D \frac{1}{3}$ E 1	F Does not exist	$\rightarrow \mathbf{D}$
4) Compute the limit $\lim_{x \to 0^-} \frac{\sin}{5}$ Answer: A $\frac{2}{5}$ B $\frac{2}{3}$	$\frac{(x^2+x)}{x-x^3}.$ $\boxed{C} \frac{2}{7} \qquad \boxed{D}$	$\frac{1}{3}$ E Does not exi	st $F_{\frac{1}{5}}$	\longrightarrow F
5) Compute the value $f'(0)$ of	the derivative in $x = 0$ for t	he function		
-,	$f(x) = \left(x^2 + \right)$			
Answer: A 2	$B \frac{4}{3} \qquad \qquad C 1$	D $\frac{1}{3}$	E 6	$\rightarrow \mathbf{C}$
6) Find the domain of definitio	n of the function			
,	$f(x) = \log(2x + $	$(+2) - \frac{1}{3r-1}.$		
Answer: $\boxed{\mathbf{A}} - 1 < x < \frac{1}{3}$ or x $\boxed{\mathbf{E}} x \neq 0$			$\boxed{\mathbf{D}} -\frac{3}{2} < x < \frac{1}{3} \text{ or } x > \frac{1}{3}$	$\rightarrow \mathbf{A}$
7) Compute the limit as $x \to -$	∞ of $f(x)$.			
Answer: $A + \infty$	$3 - \infty$ C 1	D Does not exist	\mathbf{E} -1	$\longrightarrow \mathbf{D}$
8) Compute the value $f'(0)$ of	the derivative of $f(x)$ in $x =$	= 0.		
Answer: A 4	$C = \frac{12}{11}$	$\boxed{D} \frac{14}{11}$	\mathbb{E} $\frac{2}{9}$	$\longrightarrow \mathbf{A}$
9) Which are the points of min	imum of $f(x)$?			
Answer: A Noo B $x = \frac{1}{3}$	$(2+2\sqrt{3}) \qquad \boxed{C} x = 2 + \sqrt{3}$	$\sqrt{5}$ D $x = \frac{1}{2} (3 + \sqrt{17})$	$\boxed{\mathbf{E}} x = \frac{1}{3} \left(2 + \sqrt{21} \right)$	$\rightarrow \mathbf{A}$
10) Which of the following grap	ohs is closer to the graph of	f(x)?		
Answer: A	B		E	$\rightarrow \mathbf{E}$
			BONU	S

For each question, choose ONE answer and write ONLY the letter of that answer at the end of the arrow	
1) Compute all solutions of the system of inequalities $\begin{cases} 2x^2 + x - 2 < -2x^2 \\ x \ge 2x+1 - 1. \end{cases}$	
Answer: $A = \frac{2}{3} \le x \le 0$ $B = 0 \le x < \frac{1}{2} (\sqrt{17} - 3)$ $C = 1 < x \le -\frac{1}{3}$ $D = \frac{1}{6} (-3 - \sqrt{33}) < x \le 0$ $E = x > 2$	\longrightarrow A
2) Compute all solutions of the inequality $2 x-3 - x + 1 \le 3x^2$. Answer: $\boxed{\mathbf{A}} - 1$ $\boxed{\mathbf{B}} x \le \frac{1}{2} \left(-5 - \sqrt{53}\right)$ or $x \ge \frac{1}{2} \left(\sqrt{53} - 5\right)$ $\boxed{\mathbf{C}} x \le -2$ or $x \ge 1$ $\boxed{\mathbf{D}} x \le \frac{1}{6} \left(-3 - \sqrt{93}\right)$ or $x \ge \frac{1}{6} \left(\sqrt{93} - 3\right)$ $\boxed{\mathbf{E}} x \le -1$ or $x \ge 1$	$\mathbf{pr} \longrightarrow \mathbf{D}$
3) Compute the limit $\lim_{x \to 0^-} \frac{e^{-x} - \cos(x)}{3x}$. Answer: $A = \frac{5}{9}$ $B = \frac{1}{9}$ $C = \frac{1}{3}$ $D = 1$ E Does not exist $F = 1$	
Answer: $A = \frac{1}{9}$ $B = \frac{1}{9}$ $C = \frac{1}{3}$ $D = 1$ E Does not exist $F = 1$	\rightarrow U
4) Compute the limit $\lim_{x \to 0^-} \frac{\log(3x+1)}{-x^2 - 3x}$.	
Answer: $A = 3$ $B = 1$ $C = \frac{1}{3}$ $D = 3$ $E = \frac{5}{3}$ F Does not exist	$\longrightarrow \mathbf{B}$
5) Compute the value $f'(0)$ of the derivative in $x = 0$ for the function $f(x) = \frac{\sin(-2x)}{3x^2 + 1}.$	
Answer: $A \frac{1}{2}$ $B - \frac{1}{2}$ $C - 2$ $D - \frac{1}{3}$ $E 1$	$\rightarrow \mathbf{C}$
6) Find the domain of definition of the function	
$f(x) = \frac{e^{1-x^2}}{1-x}.$	
Answer: $A x \neq -1$ $B x \leq 0$ C All \mathbb{R} $D x \neq 1$ $E x \neq 0$	$\longrightarrow \mathbf{D}$
7) Compute the limit as $x \to 1-$ of $f(x)$. Answer: $A \to B = 0$ $C \to D = 1$ $E \to \infty$	$\longrightarrow \mathbf{E}$
8) Compute the value $f'(0)$ of the derivative of $f(x)$ in $x = 0$. Answer: A $2e$ B e C $-e$ D $-4e$ E $4e$	$\longrightarrow \mathbf{B}$
9) Which are the points of minimum of $f(x)$?	
Answer: A Noo B $x = \frac{1}{\sqrt{2}}$ C $x = -\sqrt{\frac{3}{2}}$ D $x = \frac{1}{2}(\sqrt{3}-1)$ E $x = \frac{1}{12}(\sqrt{73}-5)$	\longrightarrow A
10) Which of the following graphs is closer to the graph of $f(x)$?	
Answer: A B C D E E	$ ightarrow \mathbf{C}$
BO	NUS

For each question, choose ONE ans 1) Compute all solutions of the syst	em of inequalities $\begin{cases} x-1 - 2x \leq -\\ -x^2 - 2x + 2 > \end{cases}$		the end of the arrow	
1) Compute all solutions of the syst	$\begin{cases} x-1 - 2x \le - \\ -x^2 - 2x + 2 > \end{cases}$	-2 x + 2.		
Answer: $A \ge 3$ $B x$	≤ -2 C $x > 2$	$\boxed{D} x \le -\frac{5}{3}$	$\boxed{\mathrm{E}}$ No x	$\longrightarrow \mathbf{E}$
2) Compute all solutions of the ineq Answer: A $x \le \frac{1}{6} (-3 - \sqrt{93})$ or E $x \le -1$ or $x \ge 1$			$5 + \sqrt{5}$ D $x \le -1$ or $x \ge$	$0 \longrightarrow \mathbf{D}$
3) Compute the limit $\lim_{x \to 0} \frac{e^{3x^2 + x} - \frac{1}{3x}}{3x}$ Answer: A $\frac{1}{9}$ B $-\frac{1}{9}$		s not exist	$\left -\frac{1}{3}\right $ F -1	$ ightarrow \mathbf{C}$
4) Compute the limit $\lim_{x \to 0+} -\frac{\log(1+1)}{\sin(1+1)}$				\rightarrow F
Answer: $A - \frac{5}{3}$ $B \frac{1}{3}$	C Does not exist	$D \frac{5}{3}$	E - 5 $F 1$	$\rightarrow \mathbf{r}$
5) Compute the value $f'(0)$ of the d	erivative in $x = 0$ for the fu	inction		
	$f(x) = \frac{\sin(-x^2 + x^2)}{x^2 + x^2}$	$\frac{2x)}{2}$.		
Answer: $A - \frac{2}{3}$ B	2 $\boxed{C} \frac{1}{2}$	D 0	\mathbb{E} -1	$\longrightarrow \mathbf{E}$
6) Find the domain of definition of	the function			
	$f(x) = \frac{e^{x^2 - x}}{1 - x}$	$\frac{x+1}{x}$.		
Answer: $A x \neq -1$ B	$x \neq 0$ $\bigcirc x \leq 0$	$\boxed{D} x \neq 1$	$\boxed{\mathrm{E}} x > 0$	$\longrightarrow \mathbf{D}$
7) Compute the limit as $x \to 1-$ of			_	
Answer: $A + \infty$ B	-1 C $-\infty$	D 1	E 0	$\rightarrow \mathbf{A}$
8) Compute the value $f'(0)$ of the c Answer: A $3e$ B 0	erivative of $f(x)$ in $x = 0$. $\boxed{\mathbb{C}} - e$	D 4e	$\boxed{\mathrm{E}} 2e$	$\longrightarrow \mathbf{B}$
9) Which are the points of minimum	n of $f(x)$?			
Answer: $A = 0$ $B = -\sqrt{2}$	$\sqrt{\frac{3}{2}} \qquad \boxed{\mathbf{C}} \ x = \frac{1}{12} \left(\sqrt{73} - \right)$	5) $\boxed{\mathbf{D}} x = \frac{1}{\sqrt{2}}$	$\boxed{\mathbf{E}} x = \frac{1}{4} \left(1 - \sqrt{17} \right)$	$\rightarrow \mathbf{A}$
10) Which of the following graphs is	s closer to the graph of $f(x)$)?		
Answer: A				$\rightarrow \mathbf{B}$
			BC	ONUS

Family name:		name:		r.no.:	21
For each question, cho	bose ONE answer and wr	ite ONLY the lett	ter of that answer at	the end of the arrow	
1) Compute all solution	ons of the system of inequ	ualities $\begin{cases} -x - 2 \le x^2 + \\ x - 3 > x + 1 \end{cases}$	- <i>x</i> .		
Answer: $\boxed{\mathbf{A}} - \frac{1}{3} < x$	< 1 B $x > -\frac{1}{3}$ C	$\left] -\frac{1}{4} < x \le \frac{1}{2} \left(\sqrt{5} \right)$	-1) D No x	$\boxed{\mathbf{E}} - \frac{1}{2} < x \le \frac{1}{2} \left(\sqrt{5} - 1\right)$	\longrightarrow D
	ons of the inequality $-3 \mid$ or $x \ge \sqrt{7} - 3$ B $\frac{1}{2}$ (3			$-2 \boxed{\mathbf{D}} - \sqrt{2} \le x \le 1 + \sqrt{2}$	$\overline{5} \longrightarrow \mathbf{A}$
3) Compute the limit	$\lim_{x \to 0^{-}} -\frac{e^{x^2 + 3x} - 1}{3x}.$				
Answer: A 1	$\boxed{B} - 1 \qquad \boxed{C} - \frac{1}{3}$	D Does	s not exist	$\mathbf{E} - \frac{1}{9}$ $\mathbf{F} \frac{1}{3}$	$\longrightarrow \mathbf{B}$
4) Compute the limit	$\lim_{x \to 0} \frac{\log(x+1)}{\sin(x)}.$				
Answer: $A - \frac{5}{3}$	B -3 C -	$\frac{1}{3}$ D 1	$\boxed{\mathrm{E}}$ -5	F Does not exist	$\longrightarrow \mathbf{D}$
5) Compute the value	f'(0) of the derivative in	x = 0 for the fur	nction		
	f(x)	$= (-2x+2)\log \left(\right.$	$\left(\frac{1}{2x+1}\right).$		
Answer: $A - 8$	B -4	\boxed{C} -1	D 6	E 8	$\longrightarrow \mathbf{B}$
6) Find the domain of	f definition of the functio	n			
		$f(x) = e^{-2x + \frac{1}{-x}}$	-1+2.		
Answer: A $x \neq \frac{7}{9}$	$\boxed{\mathbf{B}} x \neq -1$	$\boxed{\mathbf{C}} x \neq \frac{4}{9}$	$\boxed{\mathbf{D}} x \neq -\frac{1}{2}$	$\boxed{\mathbf{E}} x \neq \frac{4}{5}$	$\longrightarrow \mathbf{B}$
7) Compute the limit	as $x \to -\infty$ of $f(x)$.				
Answer: $A 0$	$B + \infty$	C -1	$D - \infty$	\mathbf{E} 1	$\longrightarrow \mathbf{B}$
8) Compute the value Answer: A $\frac{7e^{3/2}}{4}$	$f'(0)$ of the derivative of $\boxed{\mathbf{B}} e^3$	$f(x) \text{ in } x = 0.$ $\boxed{C} -e$	D $\frac{7\sqrt{e}}{4}$	E $2e^{4/3}$	$\rightarrow \mathbf{C}$
9) Which are the poin	ts of minimum of $f(x)$?				
· –	$(\pm +\sqrt{2})$ $(B) x = \frac{3}{2}$	$\boxed{\mathbf{C}} x = -3$	$D x = \frac{1}{2} \left(-1 - \sqrt{2} \right)$	$\boxed{\mathbf{E}} x = \frac{1}{2} \left(-2 - \sqrt{2} \right)$	$\longrightarrow \mathbf{E}$
10) Which of the follo	wing graphs is closer to t	the graph of $f(x)$?		
Answer: A	B and the second			E	\rightarrow C
				BOI	NUS

Family name:	First na	me:	Ma	atr.no.:			22
For each question, choose O	NE answer and write	ONLY the lett	er of that answer a	at the end of th	ie arrow		
1) Compute all solutions of	• -	ities $ \begin{aligned} x^2 - x - 2 &< x \\ x &\geq 1 - 2x + \end{aligned} $	2 1.				
Answer: $\boxed{\mathbf{A}} \frac{1}{3} \le x < \frac{1}{8} \left(\sqrt{3}\right)$	\overline{B} \overline{B} $\frac{1}{8}\left(-1-\sqrt{1-1}\right)$	$\overline{33} \Big) < x \le 0 \ \boxed{\mathbb{C}}$	$-2 \le x < -\frac{1}{3} \boxed{\mathbf{D}}$	$0 \le x < \frac{1}{8} \left(\sqrt{3} \right)$	$\overline{3}-1$ E No x	\rightarrow	\mathbf{E}
2) Compute all solutions of Answer: A $-1 - \sqrt{7} \le x \le \frac{1}{2}$ D $\frac{1}{2} (-1 - \sqrt{5}) \le x \le \frac{1}{2}$	≤ 4 B $\frac{1}{2} \left(5 - \sqrt{1}\right)$				$x \ge \frac{1}{2} \left(\sqrt{13} - 1 \right)$		D
3) Compute the limit $\lim_{x \to 0^+}$ Answer: $\boxed{\mathbf{A}} - \frac{1}{3}$		D $\frac{5}{3}$	\mathbb{E} $-\frac{1}{9}$	F Does no	ot exist		D
4) Compute the limit $\lim_{x \to 0^+}$ Answer: A $\frac{1}{5}$ B		D Does	not exist	$E \frac{1}{3}$	F $\frac{2}{7}$		E
5) Compute the value $f'(0)$	of the derivative in x	= 0 for the fun	action				
	f(x)	$= 2x \log \left(3x^2 + \right)$	(x+1).				
Answer: A 0	$\log(3)$	$2\log(2)$	$D \log(2)$	E 2 lo	$\log(3)$	\rightarrow	A
6) Find the domain of defini	tion of the function						
	f(x)	$= -2\log\left(3x^2 - \right)$	-x+1).				
Answer: $\boxed{A} \frac{1}{2} \left(-3 - \sqrt{13}\right)$	$< x < \frac{1}{2} \left(\sqrt{13} - 3 \right)$	$\boxed{\mathbf{B}} x \neq 0$	$\boxed{\mathbf{C}} -1 < x < 2$	\mathbb{D} All \mathbb{R}	$\boxed{\mathbf{E}} x \neq 1$	\rightarrow	D
7) Compute the limit as $x -$ Answer: A 0		$-\infty$	D -1	E Does not e	exist	\rightarrow	С
8) Compute the value $f'(0)$	of the derivative of f	(x) in x = 0.					
Answer: $A 6$	$B - \frac{2}{3}$	C 2	D -1	Ε	<u>2</u> 3	\rightarrow	\mathbf{C}
9) Which are the points of r					0		в
Answer: $\underline{ \mathbf{A} } x = 2$	B Noo	$\boxed{\mathbf{C}} x = 1$	$\boxed{\mathbf{D}} x = -\frac{1}{2}$	E a	c = 0	\rightarrow	D
10) Which of the following g	graphs is closer to the	graph of $f(x)$?	2 4 6	2 4 6 6	1.0		
Answer: A	B	- C	D	E -	0. 12 	\rightarrow	\mathbf{C}
					BONU	JS	

Family name:		st name:		tr.no.:	23
For each question, cho	bose ONE answer and	write ONLY the lett	ter of that answer a	t the end of the arrow	
1) Compute all solution	ons of the system of in	• ,			
		$\begin{cases} 2 - x \le x^2 + x \\ x - 3 > -2x - x \end{cases}$	1.		
Answer: $\boxed{\mathbf{A}}$ No x	$\boxed{\mathbf{B}} \ 1 - \sqrt{2} \le x \le 1$	$+\sqrt{2}$ C $\sqrt{3}$ -	$-1 \le x < 2$ D	$]x > -\frac{1}{3} \qquad \boxed{\mathbf{E}} x > 2$	\longrightarrow A
2) Compute all solution	ons of the inequality –	$3 x-1 - 3x - 1 \le$	$2x^2$.		
Answer: $\boxed{\mathbf{A}} \frac{1}{2} \left(-1 - x \ge \frac{1}{2} \left(\sqrt{5} - 1 \right) \right)$	$\sqrt{5} \le x \le \frac{1}{2} \left(\sqrt{5} - 1\right)$		$x \le \frac{1}{2} \left(3 + \sqrt{5} \right) \boxed{\mathbb{C}} \\ -\frac{1}{2} \text{ or } x \ge 1$	All R $\boxed{\text{D}} x \leq \frac{1}{2} \left(-1 - \sqrt{5} \right)$	\tilde{b}) or $\rightarrow \mathbf{C}$
3) Compute the limit	$\lim_{x \to 0^-} \frac{\sin(5x)}{e^{3x} - 1}.$				
Answer: A Does no	t exist B 1	$\boxed{\mathrm{C}}$ $-\frac{5}{3}$	D $\frac{1}{3}$	$E \frac{5}{3}$ $F 5$	$\longrightarrow \mathbf{E}$
4) Compute the limit	$\lim \frac{\log(5x+1)}{2}.$				
Answer: $\boxed{\mathbf{A}} - 3$	$x \to 0 - 3x - x^2$ $\boxed{B \frac{1}{3}} \qquad \boxed{C}$	1 D -1	\mathbb{E} $\frac{5}{3}$	F Does not exist	$\longrightarrow \mathbf{E}$
5) Compute the value	f'(0) of the derivative	x = 0 for the function $x = 0$ for the func	nction		
, 1		$f(x) = (-x^2 - 1)\cos(x)$			
Answer: A 3	B 1	C 2	D 0	$\boxed{\mathrm{E}}$ -2	$\rightarrow \mathbf{D}$
6) Find the domain of	f definition of the func	tion			
		$f(x) = \frac{1}{-e^{-x}}$	-2.		
Answer: $A \neq \log($	2) $\boxed{\mathbf{B}} x \neq -\log$	$\left(\frac{4}{3}\right)$ $C x \neq \frac{1}{3}$	$\frac{\log(2)}{2}$ D $x \neq$	$\log(5)$ E All \mathbb{R}	$\longrightarrow \mathbf{E}$
7) Compute the limit	as $x \to +\infty$ of $f(x)$.				
Answer: $A - \frac{1}{2}$	B 3	C 2	D -2	$E + \infty$	$\longrightarrow \mathbf{A}$
8) Compute the value	f'(0) of the derivative	e of $f(x)$ in $x = 0$.			
Answer: $A - \frac{1}{2}$	B - 2	C $-\frac{3}{4}$	D $-\frac{1}{9}$	$\boxed{\mathrm{E}} - \frac{4}{3}$	$\longrightarrow \mathbf{D}$
9) Which are the point $-$	ts of minimum of $f(x)$			_	
Answer: $A x = 1$	B Noo	$\boxed{\mathbf{C}} x = 0$	$\boxed{\mathbf{D}} x = -1$	$\boxed{\mathbf{E}} x = 2$	$\rightarrow \mathbf{B}$
10) Which of the follows \mathbb{R}^{1}	wing graphs is closer t	o the graph of $f(x)$?		
				E	_ →E
Answer: A					$\rightarrow \mathbf{E}$ BONUS
				1	conos

Family name:	First	name:	Matr	.no.:	24
For each question, choose	e ONE answer and wri	te ONLY the lette	r of that answer at t	the end of the arrow	
1) Compute all solutions	s of the system of inequ	alities $\begin{cases} x+2 \le x^2 - x\\ x-3 > 1-2x \end{cases}$			
Answer: $\boxed{\mathbf{A}} x > -\frac{1}{3}$	$\boxed{\mathbf{B}} \sqrt{6} - 2 \le x <$	2 $\boxed{\mathbf{C}} x = 1$	1 $\boxed{\mathbf{D}} \ 0 < x \le 1$	≤ 1 E No x	$\rightarrow \mathbf{E}$
2) Compute all solutions Answer: A $x < \frac{1}{4} (1 - \frac{1}{2})$ E $x < -\sqrt{\frac{10}{3}}$ or $x > \sqrt{\frac{10}{3}}$	$\sqrt{57}$) or $x > \frac{1}{4} \left(1 + \sqrt{57} \right)$			$\sqrt{6}$ D $x < -\frac{2}{\sqrt{3}}$ or $x > \frac{2}{\sqrt{3}}$	$\rightarrow \mathbf{A}$
3) Compute the limit $\lim_{x \to a} x^{-\frac{1}{3}}$	$\lim_{x \to 0} \frac{e^{3x^2 - 3x} - 1}{3x}.$ $\boxed{B} - 1$ $\boxed{C} \frac{1}{5}$	D Does	s not exist	E 1 F $\frac{1}{3}$	→B
4) Compute the limit $\lim_{x \to a} x^{-1}$	$\lim_{x \to 0+} \frac{\sin\left(x - x^2\right)}{3x - 2x^3}.$				
Answer: $\boxed{\mathbf{A}} \frac{1}{7}$	$\boxed{B} \frac{1}{5} \qquad \boxed{C} \frac{2}{5}$	$\boxed{D} \frac{2}{7}$	$E \frac{1}{3}$	F Does not exist	$\rightarrow \mathbf{E}$
5) Compute the value f'	f(0) of the derivative in	x = 0 for the func	ction		
	f(x) =	$x \log \left(\exp(-3x) + \right)$	$-3x^2+4$).		
Answer: $\boxed{\mathbf{A}} \log(2)$	$\boxed{B}\log(5)$	$C \log(4)$	$D \log(3)$	$\mathbb{E}\log(6)$	$\longrightarrow \mathbf{B}$
6) Find the domain of d	efinition of the function	1			
		$f(x) = e^{-x + \frac{1}{2x - 1}}$	+2.		
Answer: A $x \neq \frac{2}{3}$		$\boxed{\mathbf{C}} x \neq -\frac{2}{9}$	$\boxed{\mathbf{D}} \ x \neq 0$	$\boxed{\mathbf{E}} x \neq -\frac{3}{7}$	$\longrightarrow \mathbf{B}$
7) Compute the limit as Answer: $\boxed{\mathbf{A}} - \infty$	$x \to +\infty \text{ of } f(x).$ B 0	C -1	D 1	$E + \infty$	$\rightarrow \mathbf{B}$
8) Compute the value f'					
Answer: $A - \frac{5\sqrt{e}}{2}$	$B - 3e^{9/4}$	C -3e	D $\frac{1}{e}$	$\boxed{\mathrm{E}} 4e^{4/3}$	$ ightarrow \mathbf{C}$
9) Which are the points Answer: A Noo		$c = \frac{1}{2} \left(1 + \sqrt{2} \right)$	$\boxed{\mathbf{D}} x = \frac{1}{2} \left(1 - \mathbf{v} \right)$	$\sqrt{2}$) E $x = 1$	\longrightarrow A
10) Which of the followi	ng graphs is closer to t	he graph of $f(x)$?	1 0-10-10-10-10-10-10-10-10-10-10-10-10-10	¥.	
Answer: A				E	\rightarrow D
	, D • 384 •			BON	

Family name:	First r			atr.no.:	1	25
For each question, choose C	ONE answer and wri	te ONLY the letter of	of that answer a	at the end of	the arrow	
1) Compute all solutions of	-	1				
		$\begin{cases} x+3 > -2x - 2\\ x > x^2 - 2x + 2. \end{cases}$				
Answer: A $\frac{1}{2} \left(3 - \sqrt{17}\right) < E$ $-\frac{5}{3} < x < 0 \text{ or } x > 0$	< x < 3 B $x <$	$-\frac{1}{\sqrt{3}}$ or $\frac{1}{\sqrt{3}} < x < 1$	1 $\bigcirc 1 < x$	< 2 D :	$x < \frac{1}{6} \left(-1 - \sqrt{13} \right)$	\rightarrow C
2) Compute all solutions of	the inequality $-3 a $	$ x-1 - 3x - 3 \le 3x^2$	2.			
Answer: $\underline{A} x \le \frac{1}{6} \left(-5 - \sqrt{x} \right)$ $x \ge \frac{1}{2} \left(\sqrt{37} - 5 \right)$	$\sqrt{37}$) or $x \ge \frac{1}{6} \left(\sqrt{37}\right)$		$\mathbf{r} \ x \ge 1$ C Al		$\frac{1}{2}\left(-5-\sqrt{37}\right)$ or	\longrightarrow C
3) Compute the limit $\lim_{x\to 0}$ –	$-\frac{e^{-3x}-\cos(3x)}{9x}.$					
	B Does not exist	$\boxed{\mathbf{C}} - \frac{5}{9}$	D $\frac{1}{9}$	\mathbb{E} $\frac{1}{3}$	$F - \frac{5}{3}$	$\longrightarrow \mathbf{E}$
4) Compute the limit $\lim_{x \to 0^-}$	$\frac{\log(3x+1)}{\sin(x)}.$					
Answer: $\boxed{\mathbf{A}} - 1$	B -5 C D	oes not exist	D $\frac{5}{3}$	E 3	$F \frac{1}{3}$	$\longrightarrow \mathbf{E}$
5) Compute the value $f'(0)$	of the derivative in	x = 0 for the function	on			
		$f(x) = -\frac{x\exp(2x)}{2x+1}$				
Answer: $\boxed{\mathbf{A}} - 1$	$\boxed{\mathrm{B}}$ -2	$\boxed{\mathbf{C}} 0$	D 1	E	$-\frac{1}{2}$	$\rightarrow \mathbf{A}$
6) Find the domain of defin	ition of the function	L				
		$f(x) = e^{x + \frac{1}{x+1} - 1}.$				
Answer: A $x \neq \frac{2}{9}$	$\boxed{\mathbf{B}} x \neq -1$	$\boxed{\mathbf{C}} x \neq -\frac{8}{9}$	$\boxed{\mathbf{D}} x \neq -\frac{3}{5}$	Ε	$x \neq -\frac{1}{6}$	$\longrightarrow \mathbf{B}$
7) Compute the limit as $x - \frac{1}{2}$	$\rightarrow -\infty$ of $f(x)$.					
Answer: A 1	B -1	\mathbf{C} 0	$D + \infty$	E -	$-\infty$	\rightarrow C
8) Compute the value $f'(0)$	of the derivative of	f(x) in $x = 0$.				
Answer: $A - \frac{2}{e^3}$	B 0	C $e^{11/4}$	D $4e^2$	E –	$\frac{e^{3/2}}{2}$	$\longrightarrow \mathbf{B}$
9) Which are the points of						
Answer: $A = \frac{1}{2} \left(\sqrt{2} - 1 \right)$	$\mathbf{B} x = 0$	$\boxed{\mathbf{C}} x = -\frac{3}{2}$	$D x = \frac{1}{2} \left(2 + \frac{1}{2} \right)^2$	$+\sqrt{2}$	$\mathbf{E} \ x = -2$	$\longrightarrow \mathbf{B}$
10) Which of the following	graphs is closer to the	the graph of $f(x)$?			. f	
Answer: A	<u> </u>		D	E		
					BONU	JS

Family name:	First name:	Ma	tr.no.:	26
For each question, choose ONE	answer and write ONLY th	e letter of that answer a	t the end of the arrow	
1) Compute all solutions of the	system of inequalities $\begin{cases} -x-2 \leq -2\\ 2x+1 > -2 \rangle \\ -2 \leq -2$ \\ -2 \leq -2 \\ -2 = -2 \\ -2 \leq -2 \\ -2 = -2	$\begin{aligned} -2x^2 - x \\ -2x - 1 \end{aligned}$		
Answer: $\boxed{\mathbf{A}} - \frac{1}{3} < x \le 1 + \sqrt{2}$	$\boxed{\mathbf{B}} \ 1 - \sqrt{2} \le x < 0$	$\fbox{C} No x $	$x = 1 \qquad \boxed{\mathbf{E}} \ x > -\frac{1}{3}$	$\longrightarrow \mathbf{C}$
2) Compute all solutions of the	inequality $ x-1 + x - 1 <$	$\leq x^2$.		
Answer: $A x \le \frac{1}{6} (-1 - \sqrt{13})$ $C \frac{1}{2} (-3 - \sqrt{29}) \le x \le \frac{1}{2} (1 + \sqrt{13})$			$-3 - \sqrt{21}$) or $x \ge \frac{1}{2} (\sqrt{21} - \frac{1}{2})$ i) or $x \ge \frac{1}{2} (\sqrt{21} - 5)$	$-3) \longrightarrow \mathbf{D}$
3) Compute the limit $\lim_{x \to 0+} \frac{e^{-3x}}{x}$	$\frac{x^2-x-1}{0x}.$			
Answer: $A 1$ $B \frac{1}{3}$	C Does not exist	$D \frac{1}{9}$ E	-1 F $-\frac{1}{9}$	$\longrightarrow \mathbf{F}$
4) Compute the limit $\lim_{x \to 0^-} \frac{\log(1-x)}{\sin(1-x)}$	$\frac{x+1)}{n(3x)}.$			
Answer: A Does not exist	$\boxed{B} \frac{5}{3} \qquad \boxed{C} 3$	D 1	$E - \frac{1}{3}$ $F \frac{1}{3}$	\longrightarrow \mathbf{F}
5) Compute the value $f'(0)$ of t	he derivative in $x = 0$ for the	ne function		
	$f(x) = \left(x^2 - 1\right)$	$\sin\left(2x-\frac{\pi}{2}\right).$		
Answer: $\boxed{\mathbf{A}} - 3$	B 1 C 0	D -2	E -1	\longrightarrow C
6) Find the domain of definition	n of the function			
	$f(x) = \frac{2}{3x+1}$	$+\log(2-x).$		
Answer: A $x \le 0$ B $x < -\frac{1}{3}$	or $-\frac{1}{3} < x < 3$ C $x < -\frac{1}{3}$	or $-\frac{1}{3} < x < 2$ D $-3 <$	$x < -\frac{1}{3}$ or $x > -\frac{1}{3}$ E Al	$\mathbb{R} \longrightarrow \mathbf{C}$
7) Compute the limit as $x \to +$	∞ of $f(x)$.			
Answer: A 1 B -		exist D 0	$\mathbb{E} -\infty$	$ ightarrow \mathbf{C}$
8) Compute the value $f'(0)$ of t	he derivative of $f(x)$ in $x =$	= 0.		
Answer: $A - \frac{13}{2}$	$B - \frac{19}{3}$ $C \frac{14}{11}$	D $-\frac{1}{6}$	E $-\frac{7}{3}$	$\longrightarrow \mathbf{A}$
9) Which are the points of mini	mum of $f(x)$?			
Answer: $A = \frac{1}{6} (-3 - \sqrt{29})$	B Noo C $x = \frac{1}{2} \left(-3 \right)$	$-\sqrt{17}) \boxed{\mathbf{D}} \ x = \frac{1}{2} \left(\sqrt{5}\right)$	(-1) E $x = \frac{1}{6} \left(\sqrt{21} - 1\right)$	$) \longrightarrow \mathbf{B}$
10) Which of the following grap	hs is closer to the graph of	f(x)?		
Answer: A	B C			$\rightarrow \mathbf{A}$
			Η	BONUS

Family name:		t name:		fatr.no.:	27
			er of that answer	at the end of the arrow	
1) Compute all solution	ons of the system of ine	- (0		
		$\begin{cases} x-1 > 2x - \\ 2x > x^2 + x + \end{cases}$	2.		
Answer: A $x < -\sqrt{C}$ C $-5 < x < -1$ or	Y	-	$\frac{\mathbf{B}}{\mathbf{E}} - \frac{5}{3} < x < \frac{1}{6} \left(\frac{1}{2} \right)$	$-3 - \sqrt{21}$) or $x > \frac{1}{6} \left(\sqrt{\frac{4}{3}} \right)$ or $0 < x < \frac{5}{3}$	$\overline{21} - 3) \longrightarrow \mathbf{D}$
	ons of the inequality $ x $ $\sqrt{13}$ $\leq x \leq \frac{1}{2} (\sqrt{5} - 3)$			$\frac{4}{3}$ or $x \ge \frac{1}{3}(\sqrt{7}-1)$ [1]	D No $x \longrightarrow \mathbf{B}$
3) Compute the limit	$\lim_{x \to 0} \frac{e^x - \cos(3x)}{3x}.$				
Answer: $A - \frac{5}{3}$	0.00	$\frac{5}{9}$ D Does	s not exist	E 1 F $\frac{1}{3}$	$\longrightarrow \mathbf{F}$
4) Compute the limit	$\lim_{x \to 0} \frac{x^3 + 2x^2}{1 - \cos(7x)}.$				
Answer: A $\frac{4}{49}$	$B \frac{4}{9} \qquad C$	$\frac{4}{25}$ D 4	E 2	F Does not exist	$\rightarrow \mathbf{A}$
5) Compute the value	f'(0) of the derivative	in $x = 0$ for the fun	ction		
	f(z)	$x) = (-2x+2)\log\left(\right)$	$\left(\frac{1}{2x+1}\right)$.		
Answer: A 8	B -4	\boxed{C} -1	D 6	\mathbf{E} -8	$\longrightarrow \mathbf{B}$
6) Find the domain of	f definition of the function	on			
		$f(x) = \frac{e^{-x}}{-3x^2 - 2x}$	$\overline{c+1}$.		
Answer: A $x \neq \frac{1}{2}$ (- D $x \neq -\frac{1}{2}$ and $x \neq$			nd $x \neq \frac{1}{3}$ C $x \neq$ E All \mathbb{R}	$= \frac{1}{2} \left(1 - \sqrt{5} \right)$ and $x \neq \frac{1}{2} \left(1 - \sqrt{5} \right)$	$(+\sqrt{5}) \longrightarrow \mathbf{B}$
7) Compute the limit	as $x \to +\infty$ of $f(x)$.				
Answer: $A + \infty$	B $\frac{1}{3}$	C $-\frac{1}{3}$	$D - \frac{1}{2}$	\mathbf{E} 0	$\longrightarrow \mathbf{E}$
8) Compute the value	f'(0) of the derivative	of $f(x)$ in $x = 0$.			
Answer: A $\frac{2}{5}$	$\boxed{\mathbf{B}} \frac{2}{9}$	C 1	D $\frac{1}{6}$	E -2	$ ightarrow \mathbf{C}$
9) Which are the point	ts of minimum of $f(x)$				
Answer: $A = \frac{1}{2} (1$	$x - \sqrt{3} = \frac{1}{2} \left(\sqrt{3} \right)$	$-3) \boxed{\mathbf{C}} x = \frac{1}{2} \left(\sqrt{7}\right)$	(-3) D $x = \frac{1}{3}$	$(\sqrt{13} - 4)$ E $x = \frac{1}{3} (2 - 4)$	$\sqrt{13}$) \rightarrow D
10) Which of the follo	wing graphs is closer to	the graph of $f(x)$?			
		20 16			
Answer: A	B a s		. D		\longrightarrow D
					BONUS

Family name:	First na	ame:	Matu	.no.:	28
For each question, choose	ONE answer and write	e ONLY the lette	er of that answer at	the end of the arrow	
1) Compute all solutions	of the system of inequa	lities			
/ 1	· -	(x		
		$\begin{cases} x-1 > 1 - 2x \\ x > x^2 + x. \end{cases}$			
Answer: $\boxed{\mathbf{A}} x > \frac{2}{3}$ $\boxed{\mathbf{E}} -3 < x < -\frac{1}{\sqrt{3}}$ or x	$\frac{B}{B} 2 - \sqrt{6} < x < 2 + \sqrt{6}$ $x > \frac{1}{\sqrt{3}}$	$\overline{6}$ $\boxed{C} x < \frac{1}{3}$ ($\left(-2-\sqrt{7}\right)$ or $\frac{1}{3}\left(\sqrt{7}\right)$	$\sqrt{7}-2$) < $x < 1$ D No x	$x \longrightarrow \mathbf{D}$
2) Compute all solutions	of the inequality $- x - x $	-3 - x + 1 > -3	x^2 .		
				2 D $x < \frac{1}{3} \left(-1 - \sqrt{31} \right)$ or	$\mathbf{r} \rightarrow \mathbf{B}$
$x > \frac{1}{3}(\sqrt{31} - 1)$	_		$< x < \frac{1}{2} (\sqrt{13} - 3)$		
	Ľ		$\langle x \rangle \langle y \rangle \rangle$		
3) Compute the limit $\lim_{x\to 0}$	$x - x^2$				
					Б
Answer: A Does not ex	ist $\mathbf{B} \propto$	C -1	$D - \frac{1}{2}$	$\mathbf{E} 1 \mathbf{F} 1$	$\rightarrow \mathbf{B}$
	3 0 2				
4) Compute the limit $\lim_{x \to 0}$	$\frac{x^3 - 3x^2}{\sin(3x^2)}$.				
Answer: $\boxed{\mathbf{A}} - 3$		D -1	E Does not e	rist F 1	
Answer: $[A] = -5$	$\mathbf{B} \frac{1}{3} \qquad \qquad \mathbf{C} \frac{3}{5}$	$ \mathbf{D} = 1$	E Does not e	xist $\left \mathbf{F}\right - \frac{1}{3}$	$\rightarrow D$
5) Compute the value $f'($	(0) of the derivative in $($	r = 0 for the fund	ction		
b) compute the value j (
	f(x	$) = \left(1 - x^{2}\right)\cos(x)$	$x+\pi$).		
Answer: $A - 1$	B - 2	\mathbf{C} 0	D 1	\mathbf{E} 3	$\rightarrow \mathbf{C}$
6) Find the domain of det	finition of the function				
		$-x^2-2x^2$	+1		
		$f(x) = \frac{e^{-x^2 - 2x}}{3x - 1}$			
—				_	-
Answer: $A x > 0$	$\boxed{\mathbf{B}} x \neq -\frac{1}{3}$	C All \mathbb{R}	$D x \neq \frac{1}{3}$	$\boxed{\mathbf{E}} x \neq 0$	$\rightarrow \mathbf{D}$
7) Compute the limit as a	$x \to \frac{1}{3}$ of $f(x)$.				
Answer: $A - \infty$	B -1	C 0	D 1	$\mathbf{E} + \infty$	$\longrightarrow \mathbf{A}$
8) Compute the value $f'($					
,	(b) of the derivative of \mathbf{B}	$\begin{bmatrix} C \end{bmatrix} -e$			
Answer: $\underline{ \mathbf{A} } - 4e$		$\Box -e$	D $-2e$	$ \mathbf{E} $ 3e	\rightarrow U
9) Which are the points of		_		_	_
Answer: $A = \frac{3}{2}$	$\boxed{\mathbf{B}} x = \frac{1}{2} \left(2 + \sqrt{2} \right)$	$\left \mathbf{C} \right x = \frac{1}{2} \left(-\frac{1}{2} \right) \left(-\frac{1}{2}$	$-2-\sqrt{2}$ D	Noo $\boxed{\mathbf{E}} x = 1$	$\rightarrow \mathbf{D}$
10) Which of the followin	g graphs is closer to th	e graph of $f(x)$?			
				*	
		-			
Answer: A	B	C	D		$\longrightarrow \mathbf{A}$
				BON	NUS

Family name:	First			atr.no.:	29
For each question, choose	ONE answer and wri	te ONLY the lette	r of that answer a	at the end of the arrow	
1) Compute all solutions	of the system of inequ	$\begin{cases} 1-x > 2x - 2\\ x > -3x^2 - 2x. \end{cases}$	2		
Answer: A $x < \frac{1}{6} \left(-3 - \frac{1}{6} \left(-3 - \frac{1}{3} \left(-2 - \sqrt{7}\right)\right)\right)$ or		$\boxed{\mathbf{C}} -5 < x$	$< -\frac{4}{3}$ or $x > 0$	$\boxed{D} x < -1 \text{or} 0 < x < -1$	$1 \longrightarrow \mathbf{D}$
2) Compute all solutions Answer: A $\frac{1}{8}(-1-\sqrt{3})$ C $\frac{1}{4}(-3-\sqrt{33}) < x < 1$				$\frac{\frac{1}{8}(3-\sqrt{89}) < x < \frac{1}{8}(3+\sqrt{89})}{\sqrt{13}} < x < \frac{1}{2}(1+\sqrt{5})$	$\overline{9}) \longrightarrow \mathbf{E}$
3) Compute the limit $\lim_{x \to 0}$ Answer: A $\frac{1}{9}$		D $-\frac{1}{3}$	$E \frac{5}{9}$	F Does not exist	$ ightarrow \mathbf{D}$
4) Compute the limit $\lim_{x \to 0}$ Answer: A Does not ex		\boxed{C} $\frac{1}{7}$	D ² / ₇	$E \frac{2}{5} F \frac{1}{3}$	$ ightarrow \mathbf{D}$
5) Compute the value $f'($	0) of the derivative in	x = 0 for the func	ction		
	f(x)	$= -\cos\left(x\exp(2x)\right)$	$(x)-\frac{\pi}{2}\Big)$.		
Answer: $\boxed{\mathbf{A}} 0$	B 4	C -4	D -1	E 2	$\longrightarrow \mathbf{D}$
6) Find the domain of def	finition of the function	1			
		$f(x) = e^{2x + \frac{1}{1-x} + \frac{1}{1-x}}$	+2.		
	$\boxed{\mathbf{B}} x \neq -\frac{1}{7}$	$\boxed{\mathbf{C}} x \neq -\frac{2}{9}$	$\boxed{D} x \neq \frac{5}{9}$	$\boxed{\mathrm{E}} x \neq -\frac{1}{2}$	$\longrightarrow \mathbf{A}$
7) Compute the limit as a Answer: $A + \infty$	$x \to +\infty \text{ of } f(x).$ B $-\infty$	C 1	D -1	\mathbf{E} 0	\longrightarrow A
8) Compute the value $f'($					
Answer: $\boxed{\mathbf{A}} - \frac{9}{4e^{3/2}}$	$\boxed{\mathbf{B}}$ -4e	C $-4e^{9/4}$	D $-\frac{5}{2e^{3/2}}$	\overline{E} $3e^3$	$\longrightarrow \mathbf{E}$
9) Which are the points of					C
Answer: $\underline{A} = 3$	$\boxed{\mathbf{B}} x = \frac{3}{2}$	C Noo	$\boxed{\mathbf{D}} x = -\frac{3}{2}$	$\boxed{\mathbf{E}} x = -2$	\rightarrow U
10) Which of the followin		The graph of $f(x)$?			
Answer: A	B			E	
				BC	NUS

Family name:		name:		atr.no.:	30
For each question, choose (ONE answer and w	rite ONLY the le	tter of that answer a	at the end of the arrow	
1) Compute all solutions of	f the system of inec	qualities			
		$\begin{cases} 3-x > -2x \\ 2x > x^2 + x2x \end{cases}$	z - 2		
		(
Answer: $A x < -\frac{1}{\sqrt{3}}$ or	$\frac{1}{\sqrt{3}} < x < 1 \boxed{\mathbf{B}}$	x < -1 or $0 < x$	c < 5 C $-1 < x <$	< 2 D $x < -1$ or $0 < x$	$<rac{2}{3}$ \longrightarrow \mathbf{C}
$\boxed{\mathbf{E}} \ 2 - \sqrt{6} < x < \frac{2}{3}$					
2) Compute all solutions of	f the inequality -3	$ x-3 - 3x - 1 \le 3x$	$\leq 2x^2.$		
				$(\sqrt{5}) \text{ or } x \ge \frac{1}{2} (\sqrt{5} - 3)$	All $\rightarrow \mathbf{D}$
R		$\boxed{E} x = 3$, 2, , _	-
	$\sin(x)$				
3) Compute the limit $\lim_{x \to 0+}$	$-\frac{\sin(x)}{e^{-x}-1}.$				
Answer: A Does not exis	st $B\frac{1}{3}$	C $\frac{5}{3}$	$D - \frac{1}{3}$	E -1 F 3	$\longrightarrow \mathbf{E}$
4) Compute the limit $\lim_{x \to 0} \frac{1}{x}$	$x^3 + 2x^2$				
			_		
Answer: $A \frac{2}{9}$ B	$\frac{4}{49} \qquad \qquad \boxed{C} \frac{2}{25}$	\overline{D} $\frac{4}{25}$	\mathbf{E} 4	F Does not exist	\rightarrow D
E) Compute the value $f/(0)$) of the derivative i	n m O fon the fr	motion		
5) Compute the value $f'(0)$,	,		
	ţ	$f(x) = 2x \exp\left(-\frac{1}{2}\right)$	$\frac{2x}{2x+1}$).		
		X	2x + 1		
Answer: $\boxed{\mathbf{A}}$ 2	$\boxed{\mathrm{B}}$ -2	C 1	D 0	\mathbf{E} -1	$\longrightarrow \mathbf{A}$
6) Find the domain of defined of the first o	nition of the function	on			
		$f(x) = \frac{2x^2}{1}$	+1.		
		1-	x		
Answer: $A \neq 1$	$\boxed{\mathbf{B}} x \ge 0$	C $x \neq -1$	$\boxed{\mathbf{D}} x \neq 0$	$\boxed{\mathbf{E}} x \neq -\frac{1}{3}$	$\rightarrow \mathbf{A}$
7) Compute the limit as x	$\rightarrow 1+ \text{ of } f(x).$				
Answer: $A - 1$	$B - \infty$	C 1	D 0	\mathbf{E} + ∞	$\rightarrow \mathbf{B}$
8) Compute the value $f'(0)$					
	$ \mathbf{B} 2$	$\begin{bmatrix} \mathbf{C} \end{bmatrix} 4$	D 1	F 3	
Answer: $\left[\mathbf{A}\right] - \frac{5}{4}$		04	D 1	$\left \mathrm{E}\right - \frac{3}{4}$	
9) Which are the points of					
Answer: $\left[\mathbf{A} \right] x = \frac{1}{3}$	$\boxed{\mathbf{B}} x = 0$	$C \mid x = 1$	$\boxed{\mathbf{D}} x = \frac{1}{2} \left(2 - \sqrt{6} \right)$	$\boxed{\mathbf{E}} x = 1 - \sqrt{2}$	$\rightarrow \mathbf{D}$
10) Which of the following	graphs is closer to	the graph of $f(x)$)?		
1.2	-2 -4	9 9 10 0.5			
	-10	0.5 1.0 1			
Answer: A	B	C			$\rightarrow \mathbf{E}$
]	BONUS

Facoltà di Ingegneria dell'informazione, Informatica e Statistica -

ACSAI

Calculus, Unit 1 (Piero D'Ancona) Test of XX January 2020 - Second Part

SOLUZIONI

$\downarrow {\rm Testo} \backslash {\rm Domanda} \rightarrow$	1	2	3	4	5	6	7	8	9	10
Ι	Е	С	А	В	Е	А	Е	С	Е	Е
II	D	Е	В	F	Е	С	D	В	D	С
III	В	С	F	F	А	А	Е	D	Е	Α
IV	С	D	А	С	В	В	Е	D	В	В
V	D	А	В	F	С	D	Е	Е	А	В
VI	С	В	F	D	С	С	В	D	D	С
VII	D	Е	С	А	D	Е	А	А	С	В
VIII	А	С	В	D	А	А	D	С	А	В
IX	В	В	В	С	В	Е	D	С	В	Α
Х	Е	Е	А	Е	А	Е	А	В	С	В
XI	С	С	В	D	D	С	А	D	В	В
XII	В	В	В	F	В	А	В	D	D	D
XIII	С	D	D	Е	В	А	А	D	А	Е
XIV	В	D	А	Е	В	С	Е	В	D	Е
XV	Е	Е	В	Е	С	D	В	D	А	Α
XVI	А	А	F	А	А	А	D	В	В	С
XVII	С	D	F	В	Е	С	Е	В	D	D
XVIII	В	Е	D	F	С	А	D	A	А	Е
XIX	А	D	С	В	С	D	Е	В	А	С
XX	Е	D	С	F	Е	D	А	В	А	В
XXI	D	А	В	D	В	В	В	С	Е	С
XXII	Е	D	D	Е	А	D	С	С	В	С
XXIII	А	С	Е	Е	D	Е	А	D	В	Е
XXIV	Е	А	В	Е	В	В	В	С	А	D
XXV	С	С	Е	Е	А	В	С	В	В	С
XXVI	С	D	F	F	С	С	С	A	В	Α
XXVII	D	В	F	А	В	В	Е	С	D	D
XXVIII	D	В	В	D	С	D	А	С	D	А
XXIX	D	Е	D	D	D	А	А	Е	С	С
XXX	С	D	Е	D	А	А	В	D	D	Е