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DEBER No.2 Límite de funciones

NOTA: LA RESOLUCION DE LOS EJERCICIOS ESTA AL FINAL DE LOS EJERCICIO PROPUESTOS

1. En los ejercicios siguientes, evalúe el límite (si existe):

$$\cancel{lim}(3x - x + 4)$$

 $x\rightarrow 2$

$$lim \frac{y^2-2}{3}$$

$$\rightarrow 12y + 3$$

$$lim \ \underline{z^2 + z - 9}$$

$$z \rightarrow -3$$
 $z + 2$

$$\lim \frac{x^2 - 3x - 4}{2}$$

$$x \rightarrow -2 x^2 - 4x - 14$$

$$\lim \frac{2x^2+x-4}{3}$$

$$x \rightarrow 1$$
 $3x^{2} + 2x - 6$

$$\lim_{t \to 4} \sqrt{\frac{t-4}{t^2-1}}$$

$$\lim_{x \to 4} \frac{2x}{16 - x^2}$$

$$\lim_{x \to 0} \frac{x^2 - 5}{2x - 3x + 1}$$

$$\lim_{t\to 2} \frac{\sqrt{t}-\sqrt{4}}{t^2-16}$$

$$\lim_{s\to 0} \frac{\sqrt{9-s}-2}{1-s}$$

$$\lim_{x \to 1} \frac{x^4 - 6x^2 + 8x - 4}{x^4 - 2x^3 + 2x - 1}$$

$$\lim_{x \to 1} \frac{x^2 - 4}{x^2 - 2|x - 1| - 3}$$



$$\lim_{x \to 2} \left(\frac{3x - 2}{2x^2 - 4} - \frac{4x^2 - 1}{3x - 2} \right)$$

$$\lim_{x \to 1} \frac{\sqrt{2x+1} + 3\sqrt{2x-1}}{3\sqrt{x+1} - \sqrt{2x-1}}$$

$$f_{(x)} = \begin{cases} x^2 + 4x - 8, & \text{si } x \ge -3 \\ x + 4, & \text{si } x \le -3 \end{cases} \qquad \lim_{x \to -3} f_{(x)} = ?$$

EJERCICIOS RESUELTOS

A) 15	2		F) 1	VI - 1	()	24	1.17
1) lim ($3x^2 - x + 4$) White		$\sqrt{1 + 12 - 16}$			m1) (+
×→2	3-1	074	X → 2	+ 16	24+43		- 6
1	(3(2) - 2	1.1.1	lim	13 11			
	1 3 (2) - 2	T 411	11m 12	$\sqrt{2} - \sqrt{4}$ $2^2 - 16$	- 181.1		l Um
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- 1	1 60 30						10
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X-1		0-8	X72	12 //	MI		1-N
	2 6						
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tim	- 3/1	- mi3		4	10-		
Z-0-3	1-10/11-15	- 1 -X	Lim	14-6(1)2	+8(1)	-11	
2 \ .	2.2		X-1	14-2(1)3	+ 2(1)	1-1	ATX
	$2x^2 + x -$		1	1 () (4
×→ 1	$3x^2 + 2x$	-6	Lim	1-6+8	5 - 9	= -	1 Indete
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X-1	3++2-6	= 1/	x - 1+	14-2(1)3	+ 2(1)	-1	F 6 - 7
					H		esti)
4) (m	2×		Lim	14-6(t)2	+8(1)-4	1-11-
X+4	16 - x2		X7 1-	74-21-	1)3+2	(71)	-1-0-
						NO	existe
Lim	2(4)	8 _ Inc	determinacio		< 0	1 1	14+4
X-4	16-42	0			0		
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7 7	10-92	9		1111	X	20 (4
	2 (4-)	8- +0			5-5/	7	mU
lim					5 0		0 -1x
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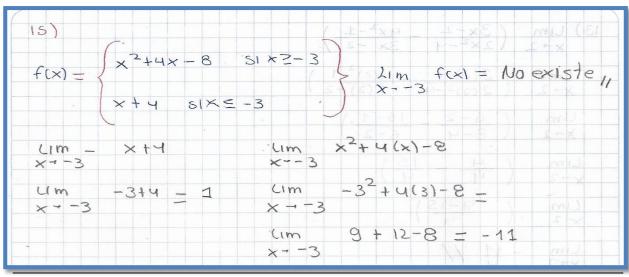


7) (im y -1	y ² -3 2y ³ +	2 3 21	-	V + 2		m *2	11 - X	(.d	11)	ur S-			V	19	1	5-5	5 S	2	-	ml *	X	(1)
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													-										

Límite de funciones



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13) Lim (3x-2, -4x^2-1)
x-2 (2x^2-4, 3x-2)
  ×-,2
                                                 8-XH+5X
  X+4 SIXE-3
  Lim
         \begin{pmatrix} 6-2 & 16-1 \\ 8-4 & 6-2 \end{pmatrix}
  X-2
  Lim (
  Lim ( 4-15)
  ×-2
  Lim - 11 //
  X72
(4) Lim \sqrt{2} \times +1 + 3 \sqrt{-2} \times -7
   X-1 3 / X+1 - 12x-1
  Lim V3 + 3V1 = X-7 3V2 - V1
  \frac{1}{x-1} - \frac{\sqrt{3} + 3 \times 1^2}{3\sqrt{2} - 1}
  \begin{array}{ccc} \text{Lim} & (\sqrt{3} + 3) \times (3\sqrt{2} + 1) \\ \times & 1 & (3\sqrt{2})^2 + 12 \end{array}
X-1
          316+13+912+3
  Lim
  x - 1
                       17
```



Límite de funciones



2. Calcular los siguientes límites:

$$\lim_{x \to 1} \left[\frac{3x - 3}{2x - 5} + \sqrt{x^2 + 2x + 4} + (x^2 - 3)^4 (x^3 - 2)^5 \right]$$

$$\lim_{x \to 1} \sqrt{\frac{3x+2}{x+1} + \frac{5x-2}{x^2+2x-1} + \frac{(x-3)(x-2)}{(x-2)(x-5)}}$$

2)
$$(lm)$$
 $\sqrt{3x+2}$ $\sqrt{3x+2}$ $\sqrt{3x-2}$ $\sqrt{(x-3)(x-2)}$ $\sqrt{x+1}$ $\sqrt{x+1}$ $\sqrt{x^2+2x-1}$ $\sqrt{(x-2)(x-5)}$ $(x-2)$ $\sqrt{x+1}$ $\sqrt{3(1)+2}$ $\sqrt{3(1)+2}$ $\sqrt{(1-3)(1-2)}$ $\sqrt{(1-3)(1-2$

$$\lim_{x \to 1} \frac{x^3 + 3x^2 - 4x + 2}{x^2 + 4x - 6}$$

$$\lim_{x \to 1} \frac{x^4 + 2x^3 - 3x^2 + 4x + 2}{x + 3x - 3}$$

3)
$$\lim_{x \to 1} \frac{x^3 + 3x^2 - 4x + 2}{x^2 + 4x - 6}$$
 $\lim_{x \to 1} \frac{3 + 3(1)^2 - 4(1) + 2}{x^2 + 4x + 1}$
 $\lim_{x \to 1} \frac{1^2 + 4(1) + 6}{1 + 4x - 6}$
 $\lim_{x \to 1} \frac{1 + 3 - 4 + 2}{1 + 4x - 6}$
 $\lim_{x \to 1} \frac{2}{x^2 - 2} \frac{1}{1 + 4x - 6}$

4)
$$\lim_{X \to 2} \frac{1}{3} + 2x^3 - 3x^2 + 4x + 2$$

 $\lim_{X \to 1} \frac{1}{4} + 2(1) - 3(1)^2 + 4(1) + 2$
 $\lim_{X \to 2} \frac{1}{4} + 3(1) + 3$
 $\lim_{X \to 2} \frac{1}{4} + 2 - 3 + 4 + 2$
 $\lim_{X \to 2} \frac{1}{4} + 3 + 3$
 $\lim_{X \to 2} \frac{6}{4} - 6$
 $\lim_{X \to 2} \frac{6}{4} - 6$



$$\lim_{x \to 1} \frac{x^5 + 3x^4 - 2x^3 \cdot 2x^2 + 3x}{x^3 + x^2 + 4x}$$

4)
$$\lim_{x \to 3} x^{4} - 2x^{3} \times 2x^{2} + 3x$$
 $\lim_{x \to 1} x^{3} + x^{2} + 4x$
 $\lim_{x \to 1} 1^{5} - 3(1)^{4} - 2(1)^{3} \times 2(1)^{2} + 3(1)$
 $\lim_{x \to 1} 1^{3} + 1^{2} + 4(1)$
 $\lim_{x \to 1} 1^{-3} - 2 \times 2 + 3$
 $\lim_{x \to 1} 1^{-3} - 2 \times 2 + 3$
 $\lim_{x \to 1} 1^{-3} + 4 \times 4$
 $\lim_{x \to 1} 1^{-3} + 4 \times 4$

$$\lim_{x \to 2} \frac{x^4 + 3x^3 - 2x^2 + 3x + 2}{x^4 + 2x^3 - x^2 - 4x + 2}$$

6)
$$\lim_{x \to 2} \frac{x^4 + 3x^3 - 2x^2 + 3x + 2}{x + 2 + 3x + 2}$$

 $\lim_{x \to 2} \frac{2^4 + 3(2)^3 - 2(2)^2 + 3(2) + 2}{x + 2}$
 $\lim_{x \to 2} \frac{2^4 + 3(2)^3 - 2^2 - 4(2) + 5}{2^4 + 2(2)^3 - 2^2 - 4(2) + 5}$
 $\lim_{x \to 2} \frac{16 + 24 - 4 + 6 + 2}{16 + 16 - 4 - 8 + 5} = \frac{20}{22 + 41}$

$$\lim_{x \to 0} \frac{\sqrt{x^2 + 3x + 4} + \sqrt{x^2 + 3x + 4}}{\sqrt{x + 16} - 2}$$

7) (im x-0	$\sqrt{x^2 + 3x + 4} + \sqrt{x^2 + 3x + 4}$
(im	V02+3(0)+4 + V02+3(0)+4
x-0	V 0+16-2
Um	WO 1141 10 1 + 1 V 4
×-0	V V 161 -2
Lim	_ 1 2 + 2 _ 4 - 2/1
X10	- 4-2-3-11



$$\lim_{x \to -5} \frac{x^5 + 2x^4 - 3x^3 - \sqrt{x^2 - 9x} - x^2 + 2(x^4 - x^3 + 9)}{x^{-3} + \frac{x^2}{2 - 3x} - x^3 + 2x - \sqrt{x^2 - 1}}$$

8)
$$(Im \times \frac{1}{2} + 2 \times \frac{1}{4} - 3 \times \frac{3}{4} - \sqrt{x^2 - 9} \times -x^2 + 2$$
 $(x^4 - x^3 + 9)$
 $x - 5$ $x^{-3} + \frac{x^2}{2 - 3 x} - \frac{x^3}{4} + 2 \times -\sqrt{x^2 - 1}$
 $\lim_{x \to -5} \frac{1}{5} + 2 \cdot (5)^4 - 3 \cdot (-5)^3 - \sqrt{(-5)^2 - 9} \cdot (-5) - (-5)^4 + 2 \cdot ((-5)^4 - 15)^4 + 9$
 $\lim_{x \to -5} \frac{1}{5} + 2 \cdot (-5)^2 - (-5)^3 + 2 \cdot (-5)^4 - (-5)^4 - (-5)^4 + 2 \cdot (-5)^4 - (-5$

$$\lim_{x \to 4} \sqrt{x^3 + x^2 + x - 5} - \sqrt{3x^2 + 4x + 10} - \frac{6x^2 + 3x - 5}{x^2 - 1}$$

