

ALUMNA: INGRID ANZUETO

INSTRUCCIONES: Resuelve de forma clara y correcta los límites de las siguientes funciones.

1.  $\lim_{x \rightarrow 1} \frac{x^2 + 2x - 3}{x + 1}$

$$\frac{(1)^2 + 2(1) - 3}{(1) + 1}$$
$$\frac{1 + 2 - 3}{2}$$
$$\frac{3 - 3 - 0}{2 \quad 2}$$

2.  $\lim_{x \rightarrow \frac{1}{2}} \frac{x^3 + 5x}{4x - 6}$

$$= \frac{(\frac{1}{2})^3 + 5(\frac{1}{2})}{4(\frac{1}{2}) - 6}$$
$$= \frac{\frac{1}{8} + \frac{5}{2}}{\frac{4}{2} - 6} = \frac{\frac{1}{8} + \frac{20}{8}}{2 - 6}$$
$$= \frac{2 + 10}{-4} = \frac{-38}{-16} = \frac{-35}{-64} = \frac{19}{32}$$



$$3. \lim_{x \rightarrow -2} \frac{2x^2 - 3x + 1}{x + 2}$$

$$\frac{2(-2)^2 - 3(-2) + 1}{(-2) + 2}$$

$$\frac{8 - (-6) + 1}{0}$$

$$\frac{8 - (-5) = 13}{0}$$

$$\lim_{x \rightarrow -2} \frac{2x^2 - 3x + 1}{x + 2} = \text{INDEF}$$

RS - 5V mit -2  
 L<sup>0</sup> =  $\frac{2x^2 - 3x + 1}{x + 2}$   
 $x \rightarrow -2$   
 $\frac{(x-1)(x+3)}{x+2}$   
 $\frac{2(-2-1)(-2+3)}{-2+2}$   
 $\frac{(-17)(3)}{0} = -36$

$$4. \lim_{x \rightarrow 4} \frac{x^2 - x - 12}{x - 4}$$

$$= \frac{(4)^2 - 4 - 12}{4 - 4} = \frac{16 - 4 - 12}{0} = \frac{0}{0}$$

$$\lim_{x \rightarrow 4} \frac{x^2 - x - 12}{x - 4} = \frac{(x-4)(x+3)}{x-4}$$

$$\lim_{x \rightarrow 4} x + 3 = -4 + 3 = -1$$

$$5. \lim_{x \rightarrow 2} \frac{x^2 + x - 6}{x^2 - 4} = \frac{(2)^2 + 2 - 6}{(2)^2 - 4} = \frac{4 - 4}{4 - 4} = \frac{0}{0}$$

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

$$\lim_{x \rightarrow 2} x + 3 = 2 + 3 = 5$$



$$6. - \lim_{y \rightarrow 3} \frac{y^3 - 27}{y^2 - 9}$$

$$\frac{(3)^3 - 27}{(3)^2 - 9} = \frac{27 - 27}{9 - 9} = \frac{0}{0}$$

$$\lim_{y \rightarrow 3} \frac{y^3 - 27}{y^2 - 9} = \frac{(y-3) - 27}{(y+3) - 9} = \frac{(3-3) - 27}{(3+3) - 9}$$

$$= \lim_{y \rightarrow 3} y + 3 = 3 + 3 = \boxed{9}$$

$$7. - \lim_{x \rightarrow -5} \frac{x-5}{x^2-25}$$

$$\frac{-5-5}{(-5)^2-25} = \frac{-10}{0}$$

$$\lim_{x \rightarrow -5} \frac{x-5}{x^2-25} = \frac{(x-1)-5}{(x+3)-25} = \frac{(-5-1)-5}{(-5+3)-25} = \frac{-11}{-27}$$

$$8. - \lim_{y \rightarrow 3} \frac{y^3 - 27}{y^2 - 9}$$

$$\frac{(3)^3 - 27}{(3)^2 - 9} = \frac{27 - 27}{9 - 9} = \frac{0}{0}$$

$$\lim_{y \rightarrow 3} \frac{y^3 - 27}{y^2 - 9} = \frac{(y-1) - 27}{(y+3) - 9} = \frac{(3-1) - 27}{(3+3) - 9}$$

$$\lim_{y \rightarrow 3} y + 3 = 3 + 3 = \boxed{9}$$

$$y \rightarrow 3$$



Fecha / Date:

$$9. - \lim_{t \rightarrow 0} \frac{2t^3 - 3t^2 + 4}{5t - t^2 - 7t^3}$$
$$\frac{2t^3 - 3t^2 + 4}{t^3} \cdot \frac{1}{5t - t^2 - 7t^3}$$
$$\frac{2t^3 - 3t^2 + 4}{t^3} \cdot \frac{1}{t^3(5t^{-2} - 1 - 7t)}$$

$$= \frac{2 - 3/t - 4/t^3}{5t^2 - 1 - 7t}$$

$$t=0$$
$$\frac{2 - 3/0 - 4/0^3}{5/0^2 - 1 - 7 \cdot 0}$$

$$= 2/7$$

$$10. - \lim_{x \rightarrow 0} \frac{2x^3 - 3x^2 + 1}{5x - 7 + 4x^3}$$

$$\frac{2x^3 - 3x^2 + 1}{x^3} \cdot \frac{1}{5x - 7 + 4x^3}$$
$$\frac{2x^3 - 3x^2 + 1}{x^3} \cdot \frac{1}{x^3(5/x^2 - 7/x^3 + 4x)}$$

$$= \frac{2 - 3/x + 1/x^3}{5/x^2 - 7/x^3 + 4x}$$

$$x=0$$

$$\frac{2 - 3/0 + 1/0^3}{5/0^2 - 7/0^3 + 4/0}$$

$$= \frac{1}{2} \quad 0 \quad \frac{2}{1}$$