

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

$$= \frac{(1/2)^3 + 5(1/2)}{4(1/2) - 6}$$
$$= \frac{\frac{1}{8} + \frac{5}{2}}{\frac{4}{2} - 6} = \frac{\frac{(1)(2) + (5)(4)}{8}}{2 - 6}$$
$$= \frac{2 + 10}{-4} = \frac{-38}{-16} = \frac{-35}{-69} = \frac{19}{32}$$



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

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

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

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

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

RS - 2V mit -2
 $\lim_{x \rightarrow -2} \frac{2x^2 - 3x + 1}{x + 2}$
 $= \frac{(x-1)(x+3)}{x+2}$
 $= \frac{2(-2-1)(-2+3)}{-2+2}$
 $= \frac{(-17)(3)}{0} = -36$

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

$$y \rightarrow 3$$



Fecha / Date :

$$9. - \lim_{T \rightarrow 0} \frac{2T^3 - 3T^2 + 4}{5T - T^2 - 7T^3}$$
$$\frac{2\cancel{T^3} - 3T^2 + 4}{\cancel{T^3} \quad T^3 \quad T^3}$$
$$\frac{6T - T^2 - 7T^3}{T^3 \quad T^3 \quad T^3}$$

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

T=0

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

$$= 2/7$$

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

$$\frac{2\cancel{x^3} - 3x^2 + 1}{\cancel{x^3} \quad x^3 \quad x^3}$$
$$\frac{5x - 7 + 4x^3}{x^3 \quad x^3 \quad x^3}$$

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

x=0

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

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