

a) $y = \frac{x^2 - x - 20}{x - 5}$ cuando $x \rightarrow 5$

$$\lim_{x \rightarrow 5} \frac{x^2 - x - 20}{x - 5}$$

$$x \rightarrow 5$$

$$y = \frac{x^2 - x - 20}{x - 5}$$

$$(x^2 - x - 20) = (x + 4)(x - 5)$$

$$y = \frac{(x + 4)(x - 5)}{x - 5}$$

$$y = x + 4$$

$$\lim (x + 4) = 5 + 4 = 9$$

$$x \rightarrow 5$$

$$\lim (x + 4) = 9$$

$$x \rightarrow 5$$

b) $Y = \frac{4x^3 - 5x^2 + 6}{7x - 3x^2 + 9x^3}$ cuando $x \rightarrow \infty$

$$\lim \frac{4x^3 - 5x^2 + 6}{7x - 3x^2 + 9x^3} = \frac{\frac{4x^3}{x^3} - \frac{5x^2}{x^3} + \frac{6}{x^3}}{\frac{7x}{x^3} - \frac{3x^2}{x^3} + \frac{9x^3}{x^3}}$$

$$= \frac{4 - \frac{5}{x} + \frac{6}{x^3}}{\frac{7}{x^2} - \frac{3}{x} + 9} =$$

$$= \frac{4 - \frac{5}{\infty} + \frac{6}{\infty^3}}{\frac{7}{\infty^2} - \frac{3}{\infty} + 9} = \frac{4 - 0 + 0}{0 - 0 + 9} = \frac{4}{9} = 0.44$$