

Exercícios sobre Limites

I) Calcule os limites abaixo:

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

$$3. \quad \lim_{t \rightarrow -2} \frac{t^3 + 4t^2 + 4t}{(t + 2)(t - 3)}$$

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

$$5. \quad \lim_{t \rightarrow 5/2} \frac{2t^2 - 3t - 5}{2t - 5}$$

$$6. \quad \lim_{x \rightarrow a} \frac{x^2 + (1 - a)x - a}{x - a}$$

$$7. \quad \lim_{x \rightarrow 4} \frac{3x^2 - 17x + 20}{4x^2 - 25x + 36}$$

$$8. \quad \lim_{x \rightarrow -1} \frac{x^2 + 6x + 5}{x^2 - 3x - 4}$$

$$9. \quad \lim_{x \rightarrow -1} \frac{x^2 - 1}{x^2 + 3x + 2}$$

$$10. \quad \lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2}$$

$$11. \quad \lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{x^2 - 12x + 20}$$

3.13

II) Calcule os seguintes limites infinitos

$$3. \quad \lim_{x \rightarrow +\infty} (3x^3 + 4x^2 - 1)$$

$$4. \quad \lim_{x \rightarrow +\infty} \left(2 - \frac{1}{x} + \frac{4}{x^2} \right)$$

$$5. \quad \lim_{t \rightarrow +\infty} \frac{t + 1}{t^2 + 1}$$

$$6. \quad \lim_{t \rightarrow -\infty} \frac{t + 1}{t^2 + 1}$$

$$7. \quad \lim_{t \rightarrow +\infty} \frac{t^2 - 2t + 3}{2t^2 + 5t - 3}$$

$$8. \quad \lim_{x \rightarrow +\infty} \frac{2x^5 - 3x^3 + 2}{-x^2 + 7}$$

$$31. \lim_{x \rightarrow 3^+} \frac{x}{x-3}$$

$$32. \lim_{x \rightarrow 3^-} \frac{x}{x-3}$$

$$33. \lim_{x \rightarrow 2^+} \frac{x}{x^2-4}$$

$$34. \lim_{x \rightarrow 2^-} \frac{x}{x^2-4}$$

$$35. \lim_{y \rightarrow 6^+} \frac{y+6}{y^2-36}$$

$$36. \lim_{y \rightarrow 6^-} \frac{y+6}{y^2-36}$$

$$37. \lim_{x \rightarrow 4^+} \frac{3-x}{x^2-2x-8}$$

$$38. \lim_{x \rightarrow 4^-} \frac{3-x}{x^2-2x-8}$$

Respostas

I)

$$2. -3/2$$

$$3. 0$$

$$4. 1$$

$$5. 7/2$$

$$6. a+1$$

$$7. 1$$

$$8. -4/5$$

$$9. -2$$

$$10. 4$$

$$11. 1/8$$

II)

$$3. +\infty$$

$$4. 2$$

$$5. 0$$

$$6. 0$$

$$7. 1/2$$

$$8. -\infty$$

$$9. +\infty$$

$$10. -5/7$$

$$11. +\infty$$

$$12. 0$$

$$28. \sqrt{2}$$

$$29. -1/2$$

$$30. 1/2$$

$$31. +\infty$$

$$32. -\infty$$

$$33. +\infty$$

$$34. -\infty$$

$$35. +\infty$$

$$36. -\infty$$

$$37. -\infty$$

$$38. +\infty$$

$$39. +\infty$$

$$40. +\infty$$