Discontinuità eliminabili

Periodo 3 - UdA 4

Rappresentare graficamente le seguenti funzioni

[1] $f(x) = \frac{x^2+3x+2}{x^2+2x+1}$

[2] $f(x) = \frac{2x^2+4x+2}{x^2+3x+2}$

[3] $f(x) = \frac{2x^3+4x^2}{x^2-4x}$

[4] $f(x) = \frac{3x^2+6x}{x^3+x^2}$

[5] $f(x) = \frac{x^4+4x^3+4x^2}{x^2-x-6}$

[6] $f(x) = \frac{x^2-6x+9}{x^3-9x}$

[7] $f(x) = \frac{x^3}{x^2+3x}$

[8] $f(x) = \frac{x}{x^4-2x^3}$

SOLUZIONI

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1. $f(-2) = 0 \quad \lim_{x \to -1^{\pm}} f(x) = \pm\infty \quad f(0) = 2 \quad \lim_{x \to \infty} f(x) = 1$
2. $\lim_{x \to -2^{\mp}} f(x) = \pm\infty \quad \lim_{x \to -1} f(x) = 0 \quad f(0) = 1 \quad \lim_{x \to \infty} f(x) = 2$
3. $f(-2) = 0 \quad \lim_{x \to 0} f(x) = 0 \quad \lim_{x \to 4^{\pm}} f(x) = \pm\infty \quad \lim_{x \to \pm\infty} f(x) = \pm\infty$
4. $f(-2) = 0 \quad \lim_{x \to -1^{\mp}} f(x) = \pm\infty \quad \lim_{x \to 0^{\pm}} f(x) = \pm\infty \quad \lim_{x \to \infty} f(x) = 0$
5. $\lim_{x \to -2} f(x) = 0 \quad f(0) = 0 \quad \lim_{x \to 3^{\pm}} f(x) = \pm\infty \quad \lim_{x \to \infty} f(x) = +\infty$
6. $\lim_{x \to -3^{\pm}} f(x) = \pm\infty \quad \lim_{x \to 0^{\mp}} f(x) = \pm\infty \quad \lim_{x \to 3} f(x) = 0 \quad \lim_{x \to \infty} f(x) = 0$
7. $\lim_{x \to -3^{\pm}} f(x) = \pm\infty \quad \lim_{x \to 0} f(x) = 0 \quad \lim_{x \to \pm\infty} f(x) = \pm\infty$
8. $\lim_{x \to 0} f(x) = -\infty \quad \lim_{x \to 2^{\pm}} f(x) = \pm\infty \quad \lim_{x \to \infty} f(x) = 0$