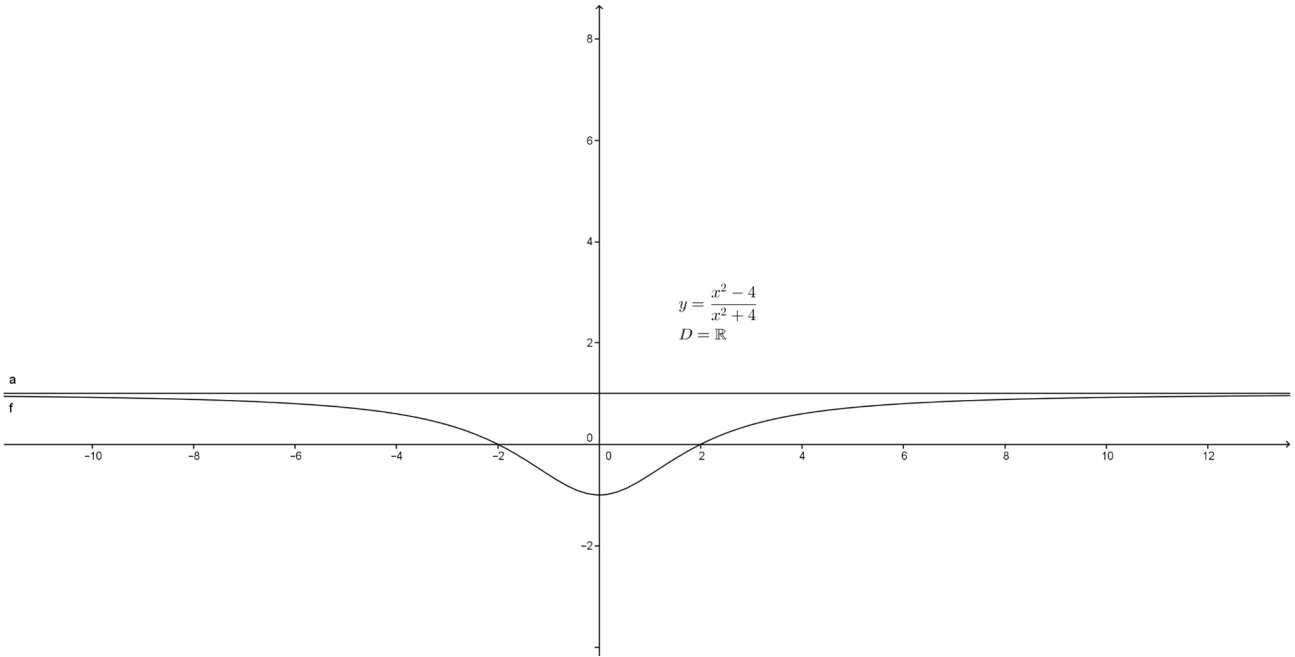


## Studio di funzione

Dominio; positività; intersezioni con gli assi; asintoti (orizzontali, verticali, obliqui); derivata prima (ricerca di eventuali punti di minimo/massimo assoluto/relativo); derivata seconda (ricerca di eventuali punti di flesso); grafico.

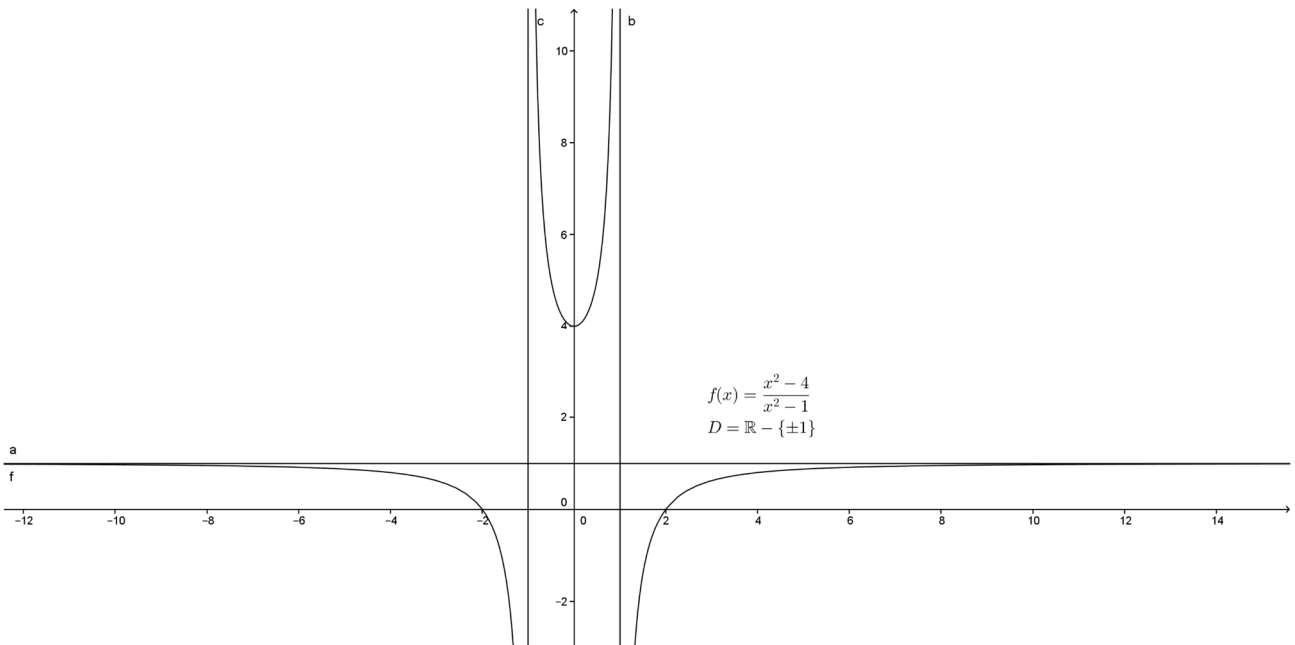
1.  $f(x) = \frac{x^2 - 4}{x^2 + 4}$

Asintoto orizzontale:  $y = 1$ ; minimo  $(0; -1)$ ; flessi  $(-\frac{2\sqrt{3}}{3}; -\frac{1}{2})$ ;  $(\frac{2\sqrt{3}}{3}; -\frac{1}{2})$



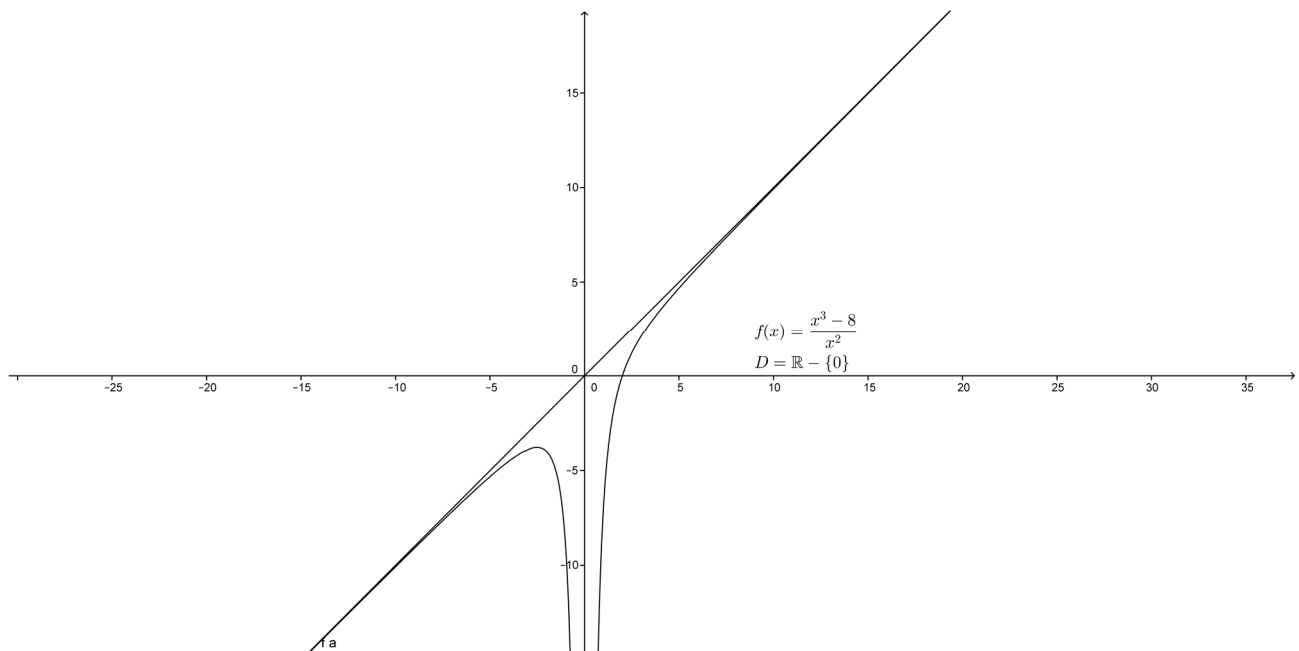
2.  $f(x) = \frac{x^2 - 4}{x^2 - 1}$

Asintoti:  $x = \pm 1$ ;  $y = 1$ ; minimo  $(0; 4)$



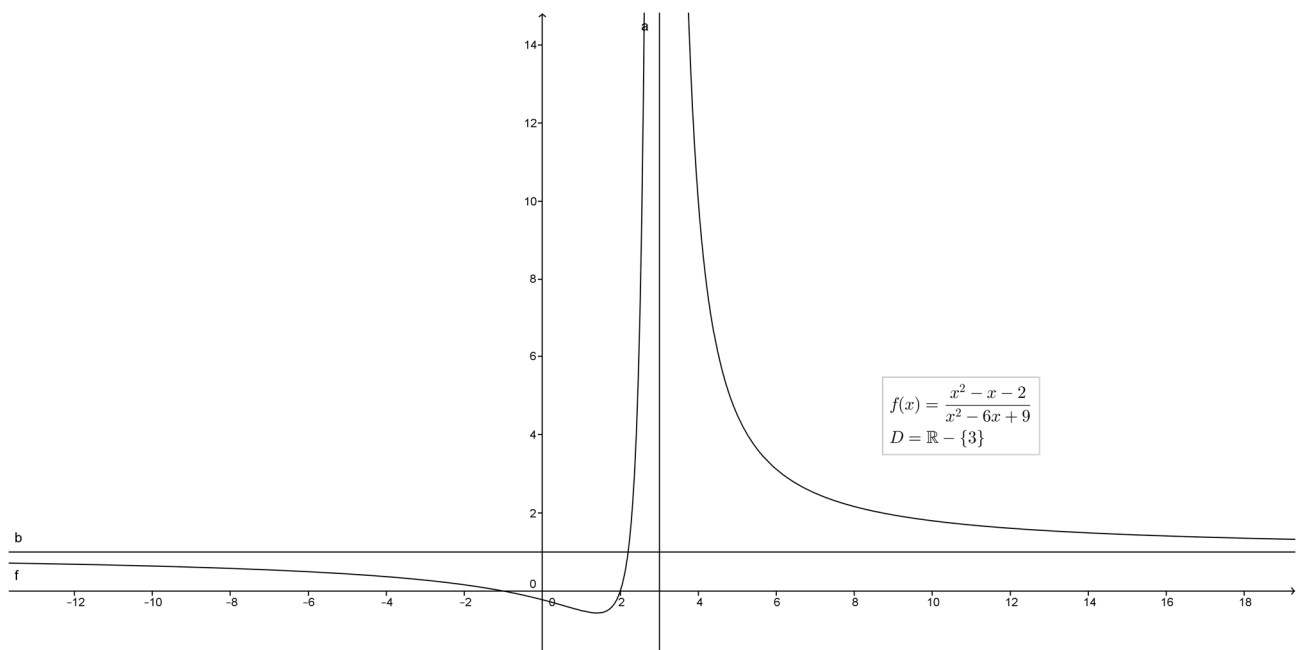
3.  $f(x) = \frac{x^3 - 8}{x^2}$

Asintoti:  $x = 0$ ;  $y = x$ ; massimo  $(\sqrt[3]{-16}; \sqrt[3]{-54})$



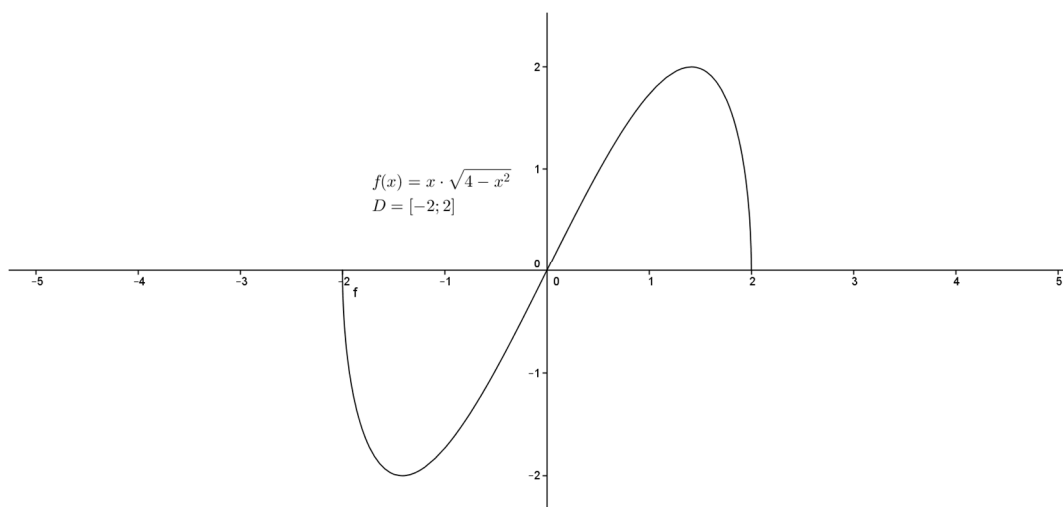
4.  $f(x) = \frac{x^2 - x - 2}{x^2 - 6x + 9}$

Asintoti:  $x = 3$ ;  $y = 1$ ; minimo  $(\frac{7}{5}; -\frac{9}{16})$ ; flesso  $(\frac{3}{5}; -\frac{7}{18})$



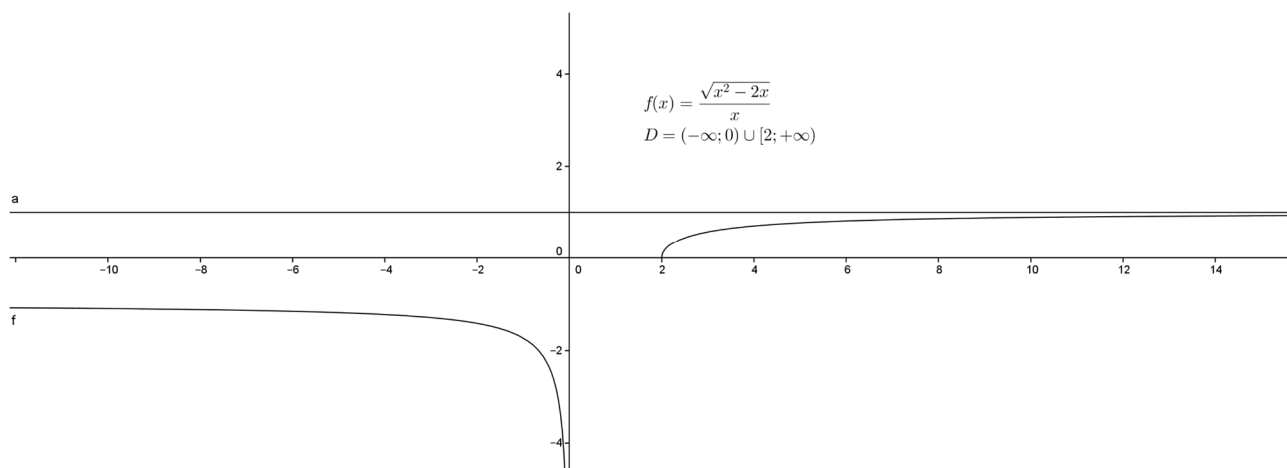
$$5. f(x) = x\sqrt{4-x^2}$$

Minimo  $(-\sqrt{2}; \sqrt{2})$ ; massimo  $(\sqrt{2}; \sqrt{2})$ ; flesso  $(0; 0)$



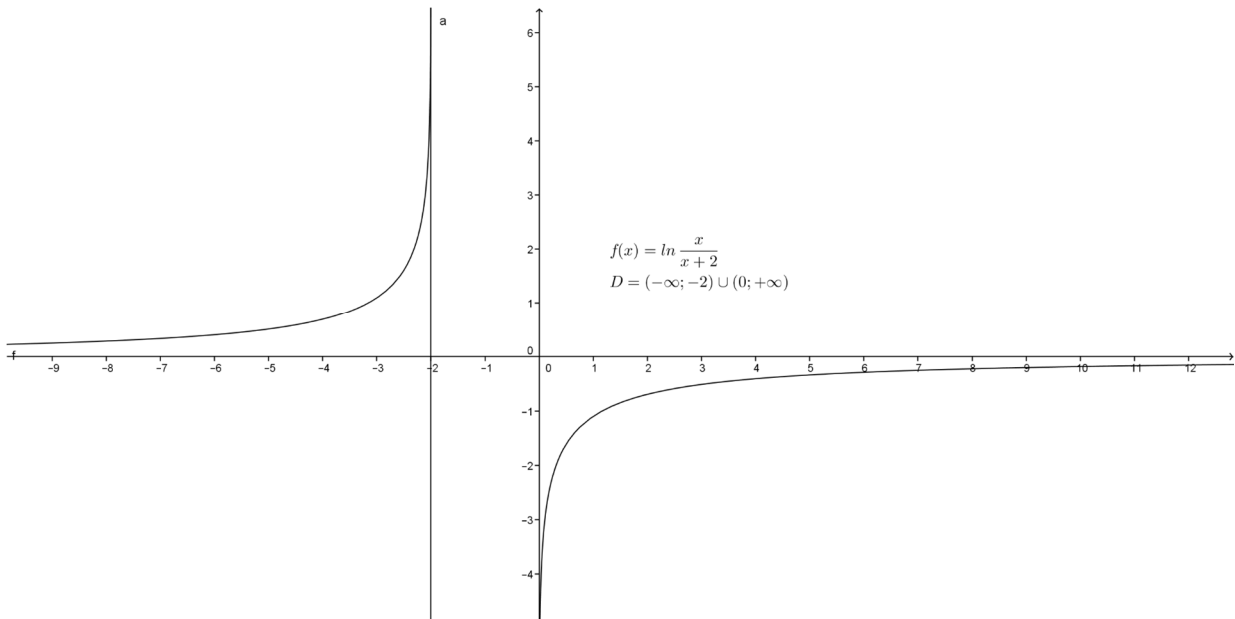
$$6. f(x) = \frac{\sqrt{x^2-2x}}{x}$$

Asintoti:  $y = \pm 1$ ;  $x = 0$ .



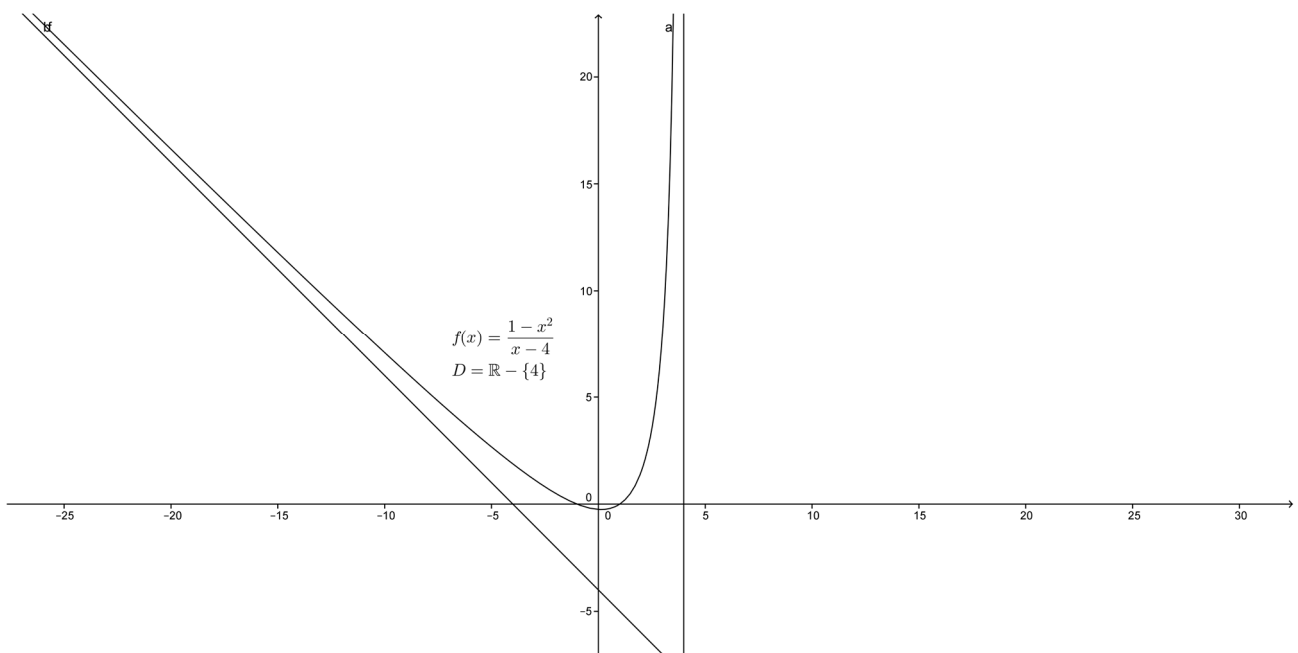
$$7. f(x) = \ln \frac{x}{x+2}$$

Asintoti:  $x = -2$ ;  $x = 0$ ;  $y = 0$



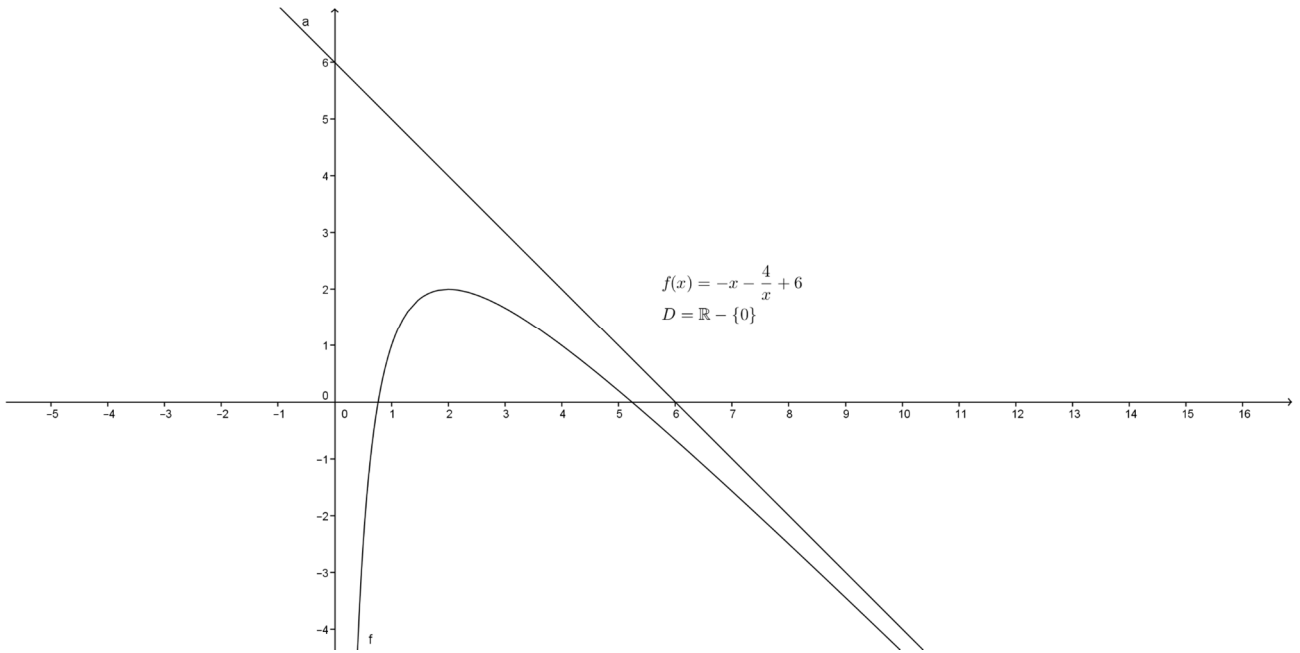
8.  $f(x) = \frac{1-x^2}{x-4}$

Asintoti:  $x = 4$ ;  $y = -x - 4$ . Minimo  $(4 - \sqrt{15}; \dots)$ ; massimo  $(4 + \sqrt{15}; \dots)$



9.  $f(x) = -x - \frac{4}{x} + 6$

Asintoti:  $x = 0$ ;  $y = -x + 6$ . Minimo  $(-2; 10)$ ; massimo  $(2; 2)$



10.  $f(x) = \frac{x^2+1}{x}$

Asintoti:  $x = 0$ ;  $y = x$ . Minimo (1; 2); massimo (-1; -2)

