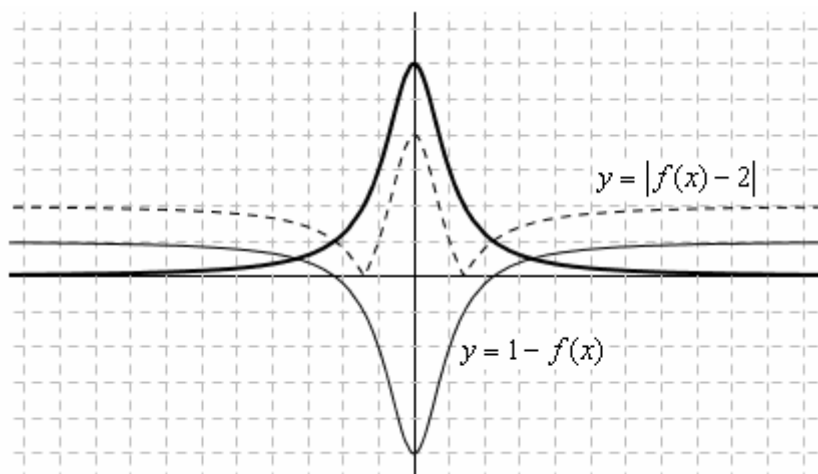
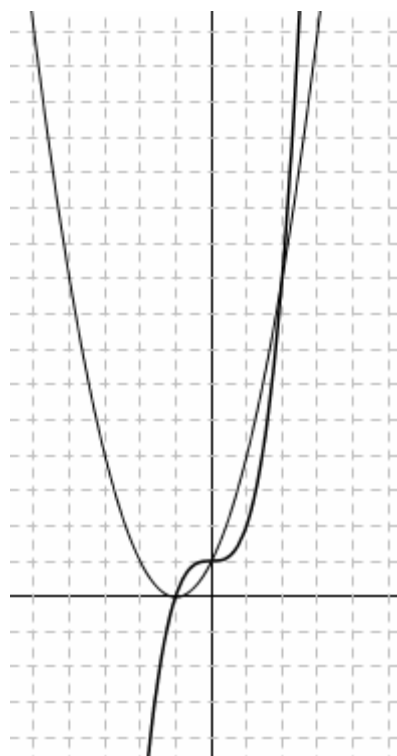


MANIPOLAZIONE DI GRAFICI - CORREZIONE

1) $y = f(x) = \frac{6}{x^2 + 1}$

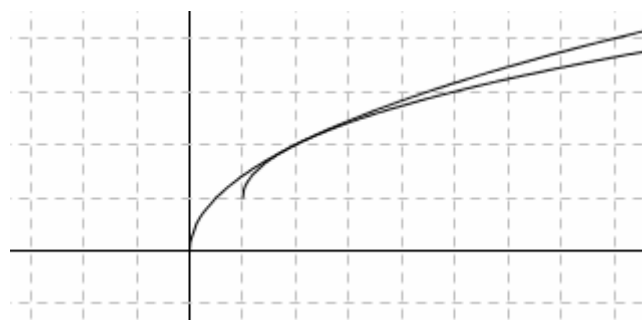


2) $x^3 + 1 = (x+1)^2$



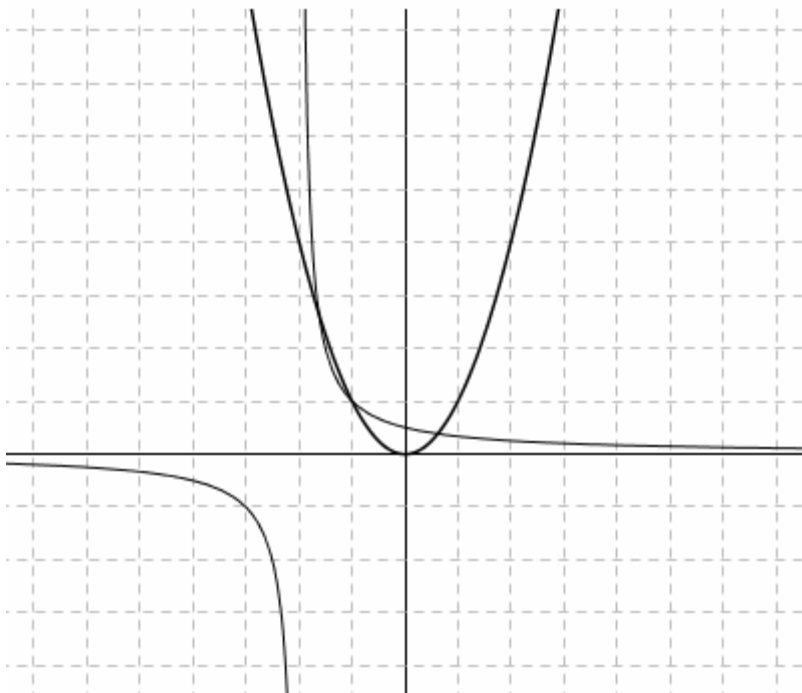
$$\begin{aligned} x^3 + 1 &= (x+1)^2 \\ x^3 \neq 1 &= x^2 + 2x \neq 1 \\ x^3 - x^2 - 2x &= 0 \\ x(x^2 - x - 2) &= 0 \\ x(x+1)(x-2) &= 0 \\ x = 0 \vee x = -1 \vee x = 2 \end{aligned}$$

3) $\sqrt{x-1} + 1 = \sqrt{2x}$



$$\begin{aligned} \sqrt{x-1} + 1 &= \sqrt{2x} \\ x \neq 1 \neq 1 + 2\sqrt{x-1} &= 2x; \quad 2\sqrt{x-1} = x \\ 4(x-1) &= x^2; \quad 4x - 4 = x^2; \quad x^2 - 4x + 4 = 0 \\ (x-2)^2 &= 0 \\ x = 2 &\text{ accettabile} \end{aligned}$$

$$4) \quad x^2 = \frac{1}{x+2}$$



$$x^2 = \frac{1}{x+2}$$

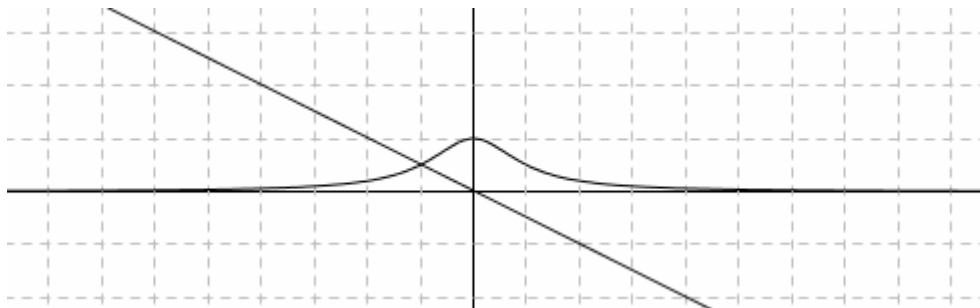
$$x^3 + 2x^2 = 1 \quad (x \neq -2)$$

$$x^3 + 2x^2 - 1 = 0$$

$$(x+1)(x^2 + x - 1) = 0$$

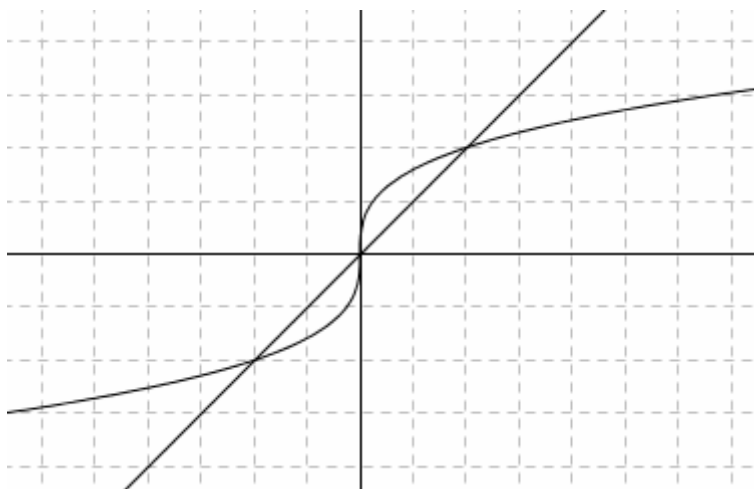
$$x = -1 \vee x = \frac{-1 \pm \sqrt{5}}{2} = \begin{cases} \approx -1,62 \\ \approx 0,62 \end{cases}$$

$$5) \quad -\frac{x}{2} = \frac{1}{x^2+1}$$



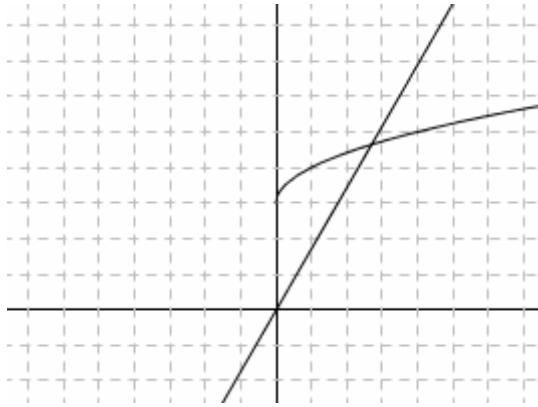
$$-\frac{x}{2} = \frac{1}{x^2+1}; \quad -x^3 - x = 2; \quad x^3 + x + 2 = 0; \quad (x+1)(x^2 - x + 2) = 0; \quad x = -1$$

$$6) \quad \sqrt[3]{4x} = x$$



$$\sqrt[3]{4x} = x; \quad 4x = x^3; \quad x^3 - 4x = 0; \quad x(x^2 - 4) = 0; \quad x = 0 \vee x = \pm 2$$

$$7) \sqrt{x} + 3 = x\sqrt{3}$$



$$\sqrt{x} + 3 = x\sqrt{3}$$

$$\text{Poniamo } \sqrt{x} = t$$

$$t + 3 = t^2\sqrt{3}; \quad t^2\sqrt{3} - t - 3 = 0; \quad t_{1,2} = \frac{1 \pm \sqrt{1 + 12\sqrt{3}}}{2\sqrt{3}} = \begin{cases} < 0, & \text{non può essere uguale} \\ & \text{a una radice quadrata} \\ \approx 1,636 & \end{cases}$$

$$\sqrt{x} \approx 1,636 \rightarrow x \approx 2,677$$

$$8) |x-4| = \frac{1}{\sqrt{x}}$$

