$y = -2x^2 + x + 1$

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

$f : \mathbb{R} \to \mathbb{R}$

$f(?) = -14$

$\Downarrow$

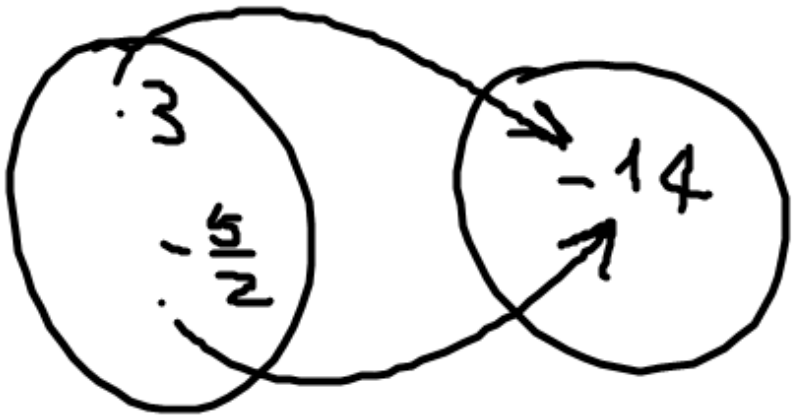
RISOLVERE $f(x) = -14$
CON x
COME INCOGNITA

$-2x^2 + x + 1 = -14$

$2x^2 - x - 15 = 0$

$x = 3 \quad \vee \quad x = -\frac{5}{2}$

$f(3) = f\left(-\frac{5}{2}\right) = -14$



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

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

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

$$-8x^2 + 4x + 4 + 1 = 0$$

$$8x^2 - 4x - 5 = 0$$

$$\frac{\Delta}{4} = 4 + 40 = 44$$

$$x = \frac{2 \pm 2\sqrt{11}}{8} = \frac{1 \pm \sqrt{11}}{4}$$

$$f\left(\frac{1+\sqrt{11}}{4}\right) = f\left(\frac{1-\sqrt{11}}{4}\right) = -\frac{1}{4}$$

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$f(x) = 1 - 2x^2 + x \qquad g(x) = x - 1$

Risolvere $f(x) = g(x)$

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

$$2x^2 = 2 \qquad x = \pm 1$$

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$f : A \to \mathbb{R} \qquad A = \{-1, 0, 1, 2\}$

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

CODOMINIO

$f(A) = \{3, 1, 9\}$

$f(-1) = 3 \qquad f(2) = 9$

$f(0) = 1$

$f(1) = 3$

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$$f : x \longmapsto -\left(\frac{x}{2}\right)^2 = -\frac{x^2}{4}$$

$$f(x) = -\frac{x^2}{4} \qquad f : \underbrace{\{-1, 2, 3, 6\}}_{A} \longrightarrow \mathbb{R}$$

CODOMINIO $f(A) = \left\{-\frac{1}{4}, -1, -\frac{9}{4}, -9\right\}$

FUNZIONI A TRATTI

$$f : \mathbb{R} \to \mathbb{R}$$

$$f(x) = \begin{cases} x & \text{se } x \leq 0 \\ x^2 + 1 & \text{se } x > 0 \end{cases}$$

$f(-1) = -1$

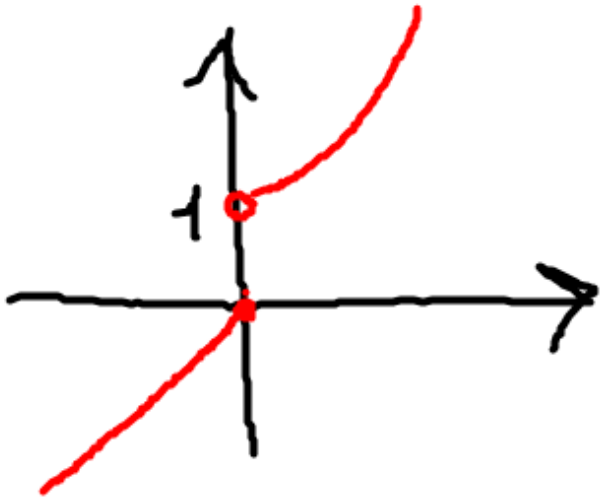
$f(1) = 2$

$f(0) = 0$

$0 \leq 0$ V

VERO O FALSO?

$0 < 0$ F



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Calcolare il dominio di $y = \frac{1}{2x^3 - 8x}$

Trovo i numeri x che annullano il denominatore e li escludo dal dominio

$2x^3 - 8x = 0$

$2x(x^2 - 4) = 0$

$x = 0 \vee x = \pm 2$

DOMINIO

$x \neq 0 \wedge x \neq \pm 2$

$\mathbb{R} \setminus \{0, -2, 2\}$

$(-\infty, -2) \cup (-2, 0) \cup (0, 2) \cup (2, +\infty)$