DISCUSSIONE GRAFICA

$$\begin{cases} 2x^2 - 2Kx + K - 1 = 0 \\ -1 \le x \le 0 \end{cases}$$

$$① \begin{cases} y = K \\ y(\cancel{1-2x}) = \dfrac{1-2x^2}{1-2x} \quad \text{con } x \neq \frac{1}{2} \\ -1 \le x \le 0 \end{cases}$$

$① \quad y = \dfrac{1-2x^2}{1-2x} \qquad x \neq \frac{1}{2} \qquad CE_f = \left\{ x \in \mathbb{R} \,/\, x \neq \frac{1}{2} \right\} = \left(-\infty; \frac{1}{2}\right) \cup \left(\frac{1}{2}; +\infty\right)$

- segno e zeri

$$\frac{1-2x^2}{1-2x} > 0$$

N) $-\frac{\sqrt{2}}{2} < x < \frac{\sqrt{2}}{2}$

D) $x < \frac{1}{2}$

	-1	$-\frac{\sqrt{2}}{2}$		0	$\frac{1}{2}$		$\frac{\sqrt{2}}{2}$	
N	$-$	0	$+$		$+$	$+$	0	$-$
D	$+$		$+$		0	$-$		$-$
$f(x)$	$-$	0	$+$		$\nexists$	$-$	0	$+$

$$\begin{cases} \dfrac{1-2x^2}{1-2x} = y \\ y = 0 \end{cases} \quad \begin{cases} 1-2x^2 = 0 \\ y = 0 \end{cases} \quad \begin{cases} x = \pm\dfrac{\sqrt{2}}{2} \\ y = 0 \end{cases} \qquad A\left(-\frac{\sqrt{2}}{2}; 0\right) \quad B\left(\frac{\sqrt{2}}{2}; 0\right)$$

$$\begin{cases} y = \dfrac{1-2x^2}{1-2x} \\ x = 0 \end{cases} \quad \begin{cases} y = 1 \\ x = 0 \end{cases} \qquad C(0; 1)$$

- massimi e minimi

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

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

$f'(x) \ge 0 \qquad$ N) $2x^2 - 2x + 1 \ge 0 \qquad x_{1,2} = \dfrac{1 \pm \sqrt{1-2}}{2}$

D) $(1-2x)^2 > 0$ sempre $x \neq \frac{1}{2}$

	-1		0	$\frac{1}{2}$	x
N	$+$	$+$	$+$		$+ + + + + +$
D	$+$	$+$	$+$	0	$+ + + + + +$
$f'(x)$	$\nearrow$				$\nearrow$

- flessi

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

$$f''(x) = \frac{\cancel{(1-2x)}\left[\cancel{8x} - \cancel{16x^2} - 4 \cancel{+ 8x} + \cancel{16x^2} \cancel{- 16x} + 8\right]}{(1-2x)^{\cancel{4}\,3}}$$

$$f''(x) = \frac{4}{(1-2x)^3} \qquad \frac{4}{(1-2x)^3} \ge 0$$

N) $4 \ge 0$

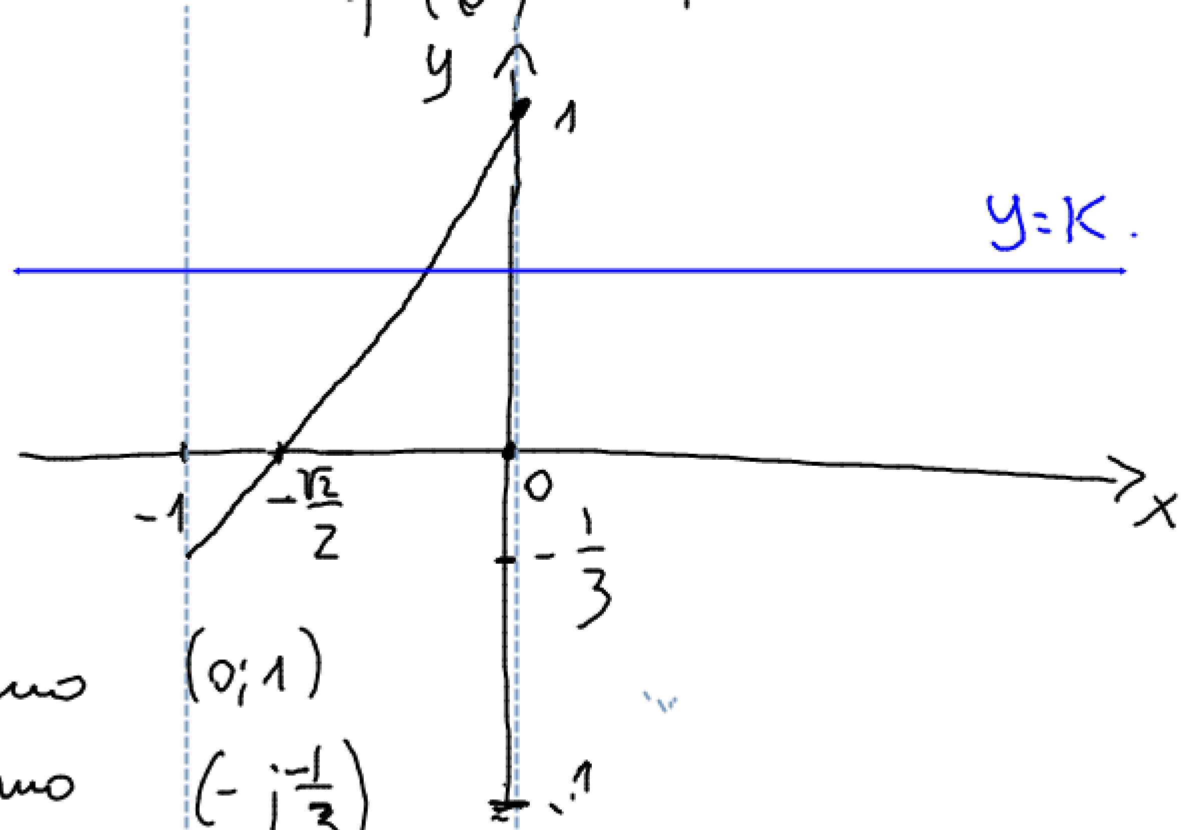
D) $1 - 2x > 0$

	-1		0	$\frac{1}{2}$	x
N	$+$	$+$	$+$		$+ + + +$
D	$+$	$+$	$+$	0	$- - - - - -$
$f''(x)$					

$f(x) = \dfrac{1-2x^2}{1-2x}$ $\qquad f(-1) = \dfrac{-1}{3}$

$f(0) = 1$

$$\begin{cases} y = \dfrac{1-2x^2}{1-2x} \\ y = k \\ -1 \le x \le 0 \end{cases}$$



$K=1$ massimo $(0;1)$

$K=-\frac{1}{3}$ minimo $(-1;-\frac{1}{3})$

$-\frac{1}{3} < K < 1$ 1 soluzione.