

Problemini con le diseguazioni

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$$(2n+1) + (2n+3) > 3(2n)$$

Condizioni:

$$2n+1 > 1 \Rightarrow n > 0 \\ n \in \mathbb{N}$$

Trovare $2n+1$ e $2n+3$

$$4n+4 > 6n \Rightarrow 2n < 4 \Rightarrow n < 2$$

$$\underbrace{0 < n}_{\text{condizione}} < 2 \quad \text{soluzione} \quad \text{e } n \in \mathbb{N} \Rightarrow n=1$$

\Rightarrow Sol: 3,5

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$$(x+1)^{-1} > \frac{x}{2} \quad \text{Quali valori può assumere } x? \quad x \in \mathbb{Z}$$

$$\frac{1}{x+1} - \frac{x}{2} > 0 \Rightarrow \frac{2-x^2-x}{2(x+1)} > 0 \quad \text{Ho moltiplicato per } (-1)$$

$$\Rightarrow \frac{x^2+x-2}{2(x+1)} < 0$$

$$N > 0 \quad x^2+x-2 > 0 \quad (x+2)(x-1) > 0$$

$$N_1 > 0$$

$$x > -2$$

$$N_2 > 0$$

$$x > 1$$

$$D > 0 \quad 2(x+1) > 0$$

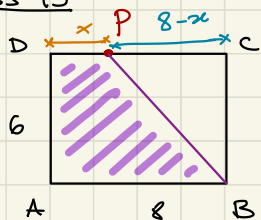
$$x > -1$$

	-2	-1	1	
N_1	-	+	+	+
N_2	-	-	-	+
D	-	-	+	+
	-	+	-	+

Sol: $x < -2 \vee -1 < x < 1$
 $(-\infty; -2) \cup (-1; 1)$

Controllo gli $x \in \mathbb{Z}$ $x < -2 \Rightarrow \{-3, -4, -5, \dots\}$
 $x \in \mathbb{Z}$ $-1 < x < 1 \Rightarrow \{0\}$

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$$AD = 6$$

$$AB = 8$$

$$DP = x$$

$$P \in DC$$

(1) x che valori può assumere

(1) $P \in DC$ $\longleftrightarrow 0 \leq DP \leq 8$ in modo che P stia dentro DC
 Geometria $0 \leq x \leq 8$

(2) $\frac{(AB + x) \cancel{AD}}{2} \leq \frac{2}{3} AB \cdot \cancel{AD}$

$$\frac{8+x}{2} \leq \frac{2}{3} \cdot 8 \quad \rightsquigarrow \quad 24 + 3x \leq 32 \quad \rightsquigarrow \quad 3x \leq 8$$

$$\rightsquigarrow x \leq \frac{8}{3}$$

Mi ricordo della condizione $0 \leq x \leq 8$

$$\rightsquigarrow 0 \leq x \leq \frac{8}{3}$$

(3) $\frac{DP}{PC} \leq 2 \quad \rightsquigarrow \quad \frac{x}{8-x} \leq 2$

$$\frac{x - 2(8-x)}{8-x} \leq 0$$

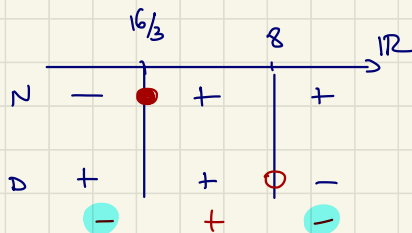
$$\frac{3x-16}{8-x} \leq 0$$

$$N \geq 0 \quad 3x - 16 \geq 0 \quad x \geq \frac{16}{3}$$

$$x \geq \frac{16}{3}$$

$$D > 0 \quad 8 - x > 0 \quad x < 8$$

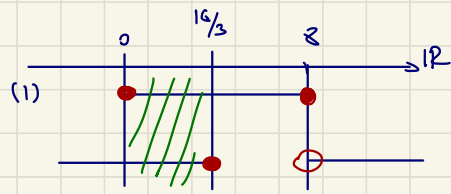
$$x < 8$$



Sol: $x \leq \frac{16}{3} \vee x > 8$
 $(-\infty; \frac{16}{3}] \cup (8; +\infty)$

Per imporre le due condizioni siano vere contemporaneamente si fa il sistema

$$\begin{cases} 0 \leq x \leq 8 & p \in \mathbb{D} \\ x \leq \frac{16}{3} \vee x > 8 \end{cases}$$



Sol: $0 \leq x \leq \frac{16}{3}$

$$[0; \frac{16}{3}]$$