

24/9/2021

840

$$\frac{1}{\sqrt{1-x}} > \frac{2}{\sqrt{1+x}}$$

$$\left[ \frac{3}{5} < x < 1 \right]$$

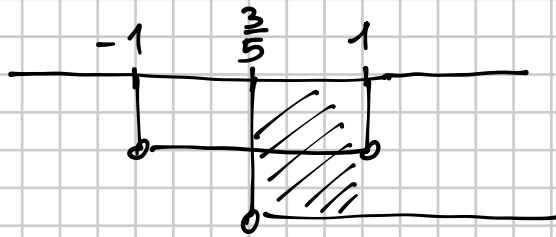
$$\begin{cases} 1-x > 0 \\ 1+x > 0 \\ \frac{1}{1-x} > \frac{4}{1+x} \end{cases}$$

multiplico entrambi i membri  
 per  $(1-x)(1+x)$  senza alterare  
 la disuguaglianza perché  $1-x > 0$   
 e  $1+x > 0$  (senza tali condizioni  
 è necessario lo studio dei segni  
 del numeratore e del denominatore)

$$\begin{cases} x < 1 \\ x > -1 \\ 1+x > 4(1-x) \end{cases}$$

$$\begin{cases} -1 < x < 1 \\ 1+x > 4-4x \end{cases} \quad \begin{cases} -1 < x < 1 \\ 5x > 3 \end{cases}$$

$$\begin{cases} -1 < x < 1 \\ x > \frac{3}{5} \end{cases}$$



$$\boxed{\frac{3}{5} < x < 1}$$

851

$$\sqrt{\frac{81x^3 - 3}{x+2}} < 9x + 1$$

$$\left[ x \geq \frac{1}{3} \right]$$

$$\begin{cases} \textcircled{1} & \frac{81x^3 - 3}{x+2} \geq 0 \\ \textcircled{2} & 9x + 1 > 0 \\ \textcircled{3} & \frac{81x^3 - 3}{x+2} < 81x^2 + 1 + 18x \end{cases}$$

$$\textcircled{1} \quad \frac{81x^3 - 3}{x+2} \geq 0 \quad \text{N)} \quad 81x^3 - 3 > 0 \Rightarrow x^3 > \frac{3}{81} \Rightarrow x^3 > \frac{1}{27} \Rightarrow x > \frac{1}{3}$$

$$\text{D)} \quad x+2 > 0 \quad x > -2$$

$$x < -2 \vee x \geq \frac{1}{3}$$

	-2		$\frac{1}{3}$	
-			0	+
-	<del>2</del>	+		+
+	<del>2</del>	-	0	+

$$\textcircled{2} \quad 9x + 1 > 0 \Rightarrow x > -\frac{1}{9}$$

$$\textcircled{3} \quad \frac{81x^3 - 3}{x+2} < 81x^2 + 1 + 18x$$

$$\frac{81x^3 - 3}{x+2} - 81x^2 - 1 - 18x < 0$$

$$\frac{\cancel{81x^3} - 3 - \cancel{81x^3} - x - 18x^2 - 162x^2 - 2 - 36x}{x+2} < 0$$

$$\frac{\cancel{81x^3} - 3 - \cancel{81x^3} - x - 18x^2 - 162x^2 - 2 - 36x}{x+2} < 0$$

$$\frac{-180x^2 - 37x - 5}{x+2} < 0$$

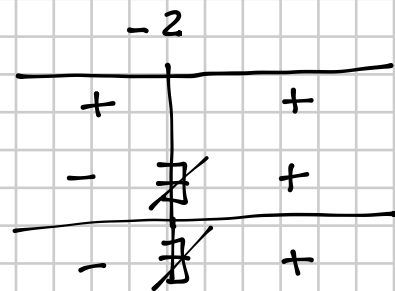
$$\frac{180x^2 + 37x + 5}{x+2} > 0$$

$$\Delta = 1369 - 3600 < 0$$

$$180x^2 + 37x + 5 > 0 \quad \forall x$$

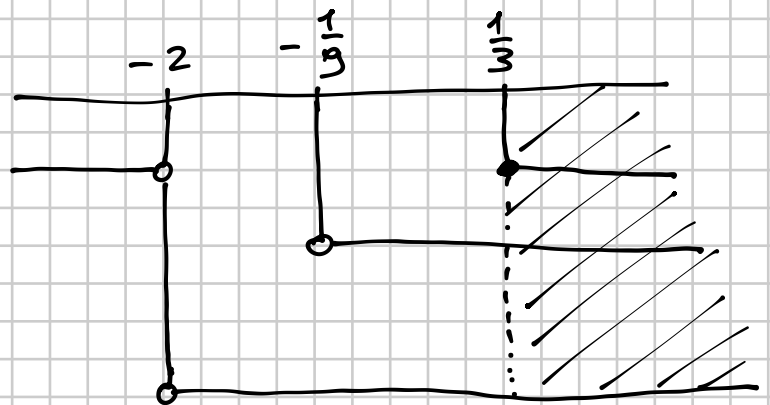
$$x+2 > 0$$

$$x > -2$$



$$x > -2$$

$$\left\{ \begin{array}{l} x < -2 \vee x \geq \frac{1}{3} \\ x > -\frac{1}{9} \\ x > -2 \end{array} \right.$$



$$x \geq \frac{1}{3}$$