

6/3/2018

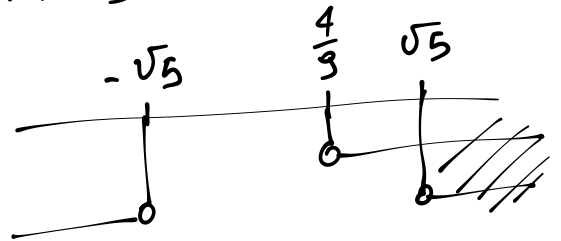
eq. 451 ~ 373]

$$2 \cdot \log_2 \left(\frac{3}{2}x - \frac{2}{3} \right) = \log_2 (x^2 - 5) - 2$$

C.E.

$$\begin{cases} \frac{3}{2}x - \frac{2}{3} > 0 \\ x^2 - 5 > 0 \end{cases} \Rightarrow \begin{cases} \frac{3}{2}x > \frac{2}{3} \\ x < -\sqrt{5} \vee x > \sqrt{5} \end{cases}$$

$$\begin{cases} x > \frac{4}{9} \\ x < -\sqrt{5} \vee x > \sqrt{5} \end{cases} \Rightarrow \boxed{x > \sqrt{5}}$$



$$\log_2 \left(\frac{3}{2}x - \frac{2}{3} \right)^2 = \log_2 (x^2 - 5) - \log_2 4 \leftarrow 2 = \log_2 2^2$$

$$\log_2 \left(\frac{3}{2}x - \frac{2}{3} \right)^2 = \log_2 \frac{x^2 - 5}{4}$$

$$\left(\frac{3}{2}x - \frac{2}{3} \right)^2 = \frac{x^2 - 5}{4}$$

$$\frac{9}{4}x^2 + \frac{4}{9} - 2x = \frac{x^2 - 5}{4}$$

$$\frac{81x^2 + 16 - 72x}{36} = \frac{9x^2 - 45}{36}$$

$$72x^2 - 72x + 61 = 0$$

$$\frac{\Delta}{4} = 1296 - 4392 < 0 \quad S = \emptyset$$

383

$$\frac{3}{\log_2 x - 1} + \frac{2}{\log_2 x + 1} = 2$$

$$x > 0$$

$$t = \log_2 x$$

$$\frac{3}{t-1} + \frac{2}{t+1} = 2$$

$$\frac{3(t+1) + 2(t-1)}{(t-1)(t+1)} = \frac{2(t^2-1)}{(t-1)(t+1)}$$

$$3t + 3 + 2t - 2 = 2t^2 - 2$$

$$2t^2 - 5t - 3 = 0$$

$$t = \frac{5 \pm \sqrt{25 + 24}}{4} = \frac{5 \pm 7}{4} = \begin{cases} -\frac{1}{2} \\ 3 \end{cases}$$

$$\log_2 x = -\frac{1}{2}$$

$$x = 2^{-\frac{1}{2}} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\log_2 x = 3$$

$$x = 2^3 = 8$$

$$\boxed{x = \frac{\sqrt{2}}{2} \vee x = 8}$$

$$1^{\circ} \text{ DEN. } \log_2 x - 1 \neq 0$$

$$\log_2 x \neq 1$$

$$x \neq 2$$

$$2^{\circ} \text{ DEN.}$$

$$\log_2 x + 1 \neq 0$$

$$\log_2 x \neq -1$$

$$x \neq 2^{-1} = \frac{1}{2}$$

$$x > 0$$

$$x \neq 2 \quad x \neq \frac{1}{2}$$

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SCRIVERE ESPANDENDO CON PR. LOGARITMI

$$\log \frac{(a+2)^3}{a} \sqrt{a} = \log \frac{(a+2)^3}{a} + \log \sqrt{a} =$$

$$= \log (a+2)^3 - \log a + \log a^{\frac{1}{2}} =$$

$$= 3 \log (a+2) - \log a + \frac{1}{2} \log a =$$

$$= 3 \log (a+2) + \left(-1 + \frac{1}{2}\right) \log a =$$

$$= 3 \log (a+2) - \frac{1}{2} \log a$$

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$$\log_a x = \frac{\log_m x}{\log_m a}$$

$$\log_3 5 \cdot \log_{25} 9 = \log_3 5 \cdot \frac{\log_3 9}{\log_3 25} =$$

$$= \log_3 5 \cdot \frac{2}{\log_3 5^2} =$$

$$= \cancel{\log_3 5} \cdot \frac{2}{2 \cancel{\log_3 5}} = 1$$

e l'è finit!