16/3/2018

302 $\log(3x-1)+\log(x-2)=\log 22$ [4]

C.E.

$\log\left[(3x-1)(x-2)\right]=\log 22$

$\begin{cases} 3x-1>0 \\ x-2>0 \end{cases}$

$(3x-1)(x-2)=22$

$\begin{cases} x>\dfrac{1}{3} \\ x>2 \end{cases} \Rightarrow \boxed{x>2}$

$3x^2-6x-x+2-22=0$

$3x^2-7x-20=0$

$-\dfrac{10}{6}$ N.A.

$X=\dfrac{7\pm\sqrt{49+240}}{6}=\dfrac{7\pm\sqrt{289}}{6}=\dfrac{7\pm 17}{6}=$

$\dfrac{24}{6}=4$

$\boxed{X=4}$

375 $\dfrac{5}{4}\log_4 x+\log_{16}\sqrt[4]{x}=\dfrac{11}{16}$ [2]

C.E.

$x>0$

$\dfrac{5}{4}\log_4 x+\dfrac{\log_4\sqrt[4]{x}}{\log_4 16}=\dfrac{11}{16}\cdot\underbrace{\log_4 4}_{1}$

$\dfrac{5}{4}\log_4 x+\dfrac{\log_4 x^{\frac{1}{4}}}{2}=\dfrac{1}{16}\log_4 4^{11}$

$\dfrac{5}{\cancel{4}}\log_4 x+\dfrac{1}{\cancel{4}}\cdot\dfrac{\log_4 x}{2}=\dfrac{1}{\cancel{16}_4}\log_4 4^{11} \quad\Big|\Big|\quad 5\log_4 x+\dfrac{1}{2}\log_4 x=\dfrac{1}{4}\log_4 4^{11}$

$$5 \log_4 x + \frac{1}{2} \log_4 x = \frac{1}{4} \log_4 4^{11}$$

$$\frac{11}{2} \log_4 x = \frac{11}{4} \boxed{\log_4 4}^{\,1}$$

$$\log_4 x = \frac{2}{4}$$

$$\log_4 x = \frac{1}{2} \implies x = 4^{\frac{1}{2}} = 2$$

OSSERVIAMO

$$5 = 5 \cdot \overbrace{\log_7 7}^{1} = \log_7 7^5$$