$x =$ _____ $e^{2x} - 2e^{x} - 3 = 0$

$x =$ _____ $\frac{1}{2}x - 8x^{1/3} = 0$

$x =$ _____ $2^{x} = 3e^{4x}$

$x =$ _____ $1 - \frac{1}{1+x} = k$

$x =$ _____ $e^{x-2} = k \cdot 4^{x}$

$x =$ _____ $4x^{3}e^{kx} - 16xe^{kx} = 0$

$x =$ _____ $2\ln(5x) = \ln(x+2)$

$x =$ _____ $(2x+5)^{2} + 5(2x+5) - 36 = 0$

$x =$ _____ $10^{2x} + 3(10^{x}) - 10 = 0$

$x =$ _____ $3(2^{2t}) - 11(2^{t}) - 4 = 0$

$x =$ _____ $\sqrt{x+9} - 2 = \sqrt{x-3}$

$x =$ _____ $\frac{x}{12} - \frac{2}{x} = \frac{1}{x}$

$x =$ _____ $\left(\frac{1}{x+8}\right)^{2} + \frac{1}{x+8} - 6 = 0$

$x =$ _____ $x^{4} + 2x^{2} = 3$

$x =$ _____ $\frac{1}{x-1} + 4 = \frac{1}{5}$

$x =$ _____ $(x+5)(x-2) = 8$

$z =$ _____ $3az + 1 = 3a - 4z$

$z =$ _____ $\frac{12}{z} - \frac{7}{z+1} = 1$

$y =$ _____ $0 = 12y^{2} + 12y - 24$

$w =$ _____ $\ln(w+2) = \ln(w) + \ln(5)$

$t =$ _____ $P = 10e^{kt}$

$t =$ _____ $2^{t} = e^{t-2}$

$t =$ _____ $t^{2}e^{3t} + 9te^{3t} = 0$

$t =$ _____ $\ln(t) + (2t) = \ln(8)$

$t =$ _____ $5\log(t) = 3$

$t =$ _____ $t^{4} - 9t = 0$

$n =$ _____ $\frac{(n^{2}-2)(3n+5)}{n-3} = 0$

$p =$ _____ $\frac{(p^{2}-5)(p+3)^{2}}{p+1} = 0$

$w =$ _____ $\log(w) + \log(w+1) = \log(20)$

$L =$ _____ $T = \dfrac{1}{2\pi}\sqrt{\dfrac{L}{g}}$

$\theta =$ _____ $\dfrac{(1-2\mu\theta)(\mu+\theta)-(\theta-\mu\theta^2)}{(\mu+\theta^2)^2}=0$ Assume $\mu > 0$

$x =$ _____ $\dfrac{k(x^2+r_0^2)^{3/2}-kx\left(\dfrac{3}{2}\right)(x^2+r_0^2)^{1/2}(2x)}{\left((x^2+r_0^2)^{3/2}\right)^2}=0$

$D =$ _____ $\dfrac{1}{1+\left(\dfrac{2\alpha}{D}\right)^2}\left(\dfrac{-2\alpha}{D^2}\right)-\dfrac{1}{1+\left(\dfrac{a}{D}\right)^2}\left(\dfrac{-\alpha}{D^2}\right)=0$

$x =$ _____ $-14kx^{-3}+2k(20-x)^{-3}=0$ Assume $k \neq 0$ *hint: Do not expand the power*

$x =$ _____ $\dfrac{25x}{\sqrt{1200^2+x^2}}-20=0$

$w =$ _____ $-5.12Vw^{-2}+10w=0$ Assume $V > 0$

Simplify

$$\frac{2x^{2/3}(x^2-3)\cdot 2x-\dfrac{2}{3}x^{-1/3}(x^2-3)^2}{(x^2-3)^{3/2}}=$$

$$\frac{1-\dfrac{1}{x}}{\dfrac{1}{x}-x}$$