38 $V(t) = 14{,}000\left(\frac{3}{4}\right)^t$

$V(2) = 14{,}000\left(\frac{3}{4}\right)^2$

$= \$7875$

47 $\log_2\left(\frac{1}{8}\right) = x$

$2^x = \frac{1}{8}$

$2^x = \frac{1}{2^3}$

$2^x = 2^{-3}$

$x = {}^{-}3$

48 $\log_4\left(\frac{1}{4}\right) = x$

$4^x = \frac{1}{4}$

$4^x = 4^{-1}$

$x = {}^{-}1$

56 $f(x) = 6 + \log(x)$

U6

VA: $x = 0$

D: $(0, \infty)$

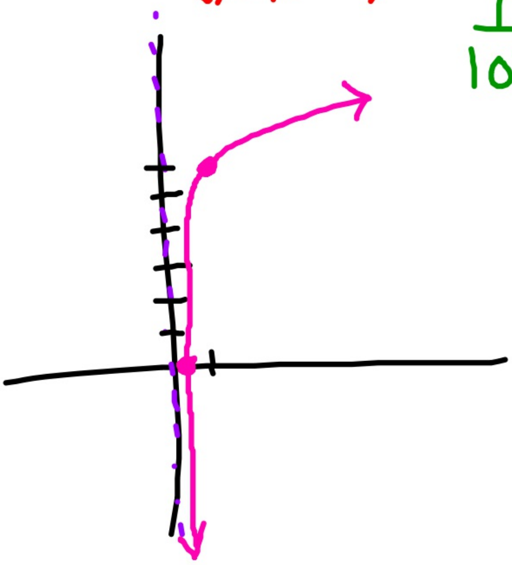
x-int: $\left(\frac{1}{1{,}000{,}000}, 0\right)$

$6 + \log(x) = 0$

$\log(x) = -6$

$10^{-6} = x$

$\frac{1}{10^6} = x$



58 $f(x) = \log(x-3) + 1$

R3, U1

VA: $x = 3$

D: $(3, \infty)$

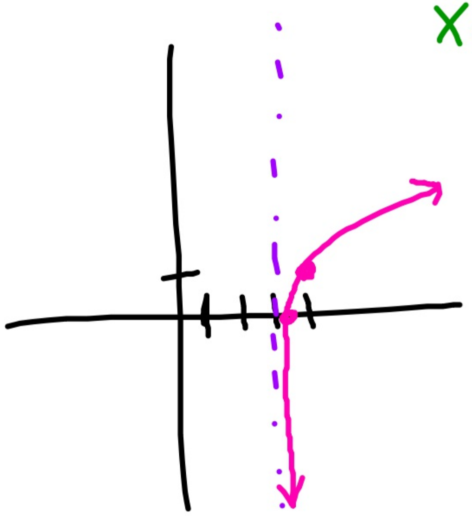
x-int: $(3\tfrac{1}{10}, 0)$

$\log(x-3) + 1$

$\log(x-3) = -$

$10^{-1} = (x-$

$x = 3\tfrac{1}{10}$



78. $\ln(3e^{-4})$

$\ln 3 + \ln e^{-4}$

$\boxed{\ln 3 - 4}$

86. $\ln\left(\frac{y-1}{4}\right)^2, \ y > 1$

$2 \cdot \ln(y-1) - 2 \cdot \ln(4)$

92. $-2\log(x) - 5\log(x+6)$

$\log \frac{1}{x^2 \cdot (x+6)^5}$

93. $\frac{1}{2}\ln(2x-1) - 2 \cdot \ln(x+1)$

$\ln \frac{\sqrt{2x-1}}{(x+1)^2}$

94. $5 \cdot \ln(x-2) - \ln(x+2) - 3 \cdot \ln$

$\ln \frac{(x-2)^5}{(x+2) \cdot x^3}$

119 $\ln 3x = 8.2$

$e^{8.2} = 3x$

$x = 1{,}213.650$

121 $2 \cdot \ln(4x) = 15$

$\ln(4x) = 7.5$

$e^{7.5} = 4x$

$x = 452.011$

123 $\ln(x) - \ln(3) = 2$

$\ln \frac{x}{3} = 2$

$e^{2} = \frac{x}{3}$

$x = 22.167$

125 $\ln \sqrt{x+1} = 2$

$e^{2} = \sqrt{x+1}$

$x = 53.598$

127 $\log_8(x-1) = \log_8(x-2) - \log_8(x+2)$

$$\cancel{\log_8}(x-1) = \cancel{\log_8}\left(\frac{x-2}{x+2}\right)$$

$$(x-1) = \frac{x-2}{(x+2)}$$

$$(x-1)(x+2) = x-2$$

$$x^2 + x - 2 = x - 2$$

$$x^2 = 0$$

$$\cancel{x = 0}$$

$$\boxed{\text{No Solution}}$$

129 $\log(1-x) = -1$

$$10^{-1} = 1 - x$$

$$\frac{1}{10} - 1 = -x$$

$$-.9 = -x$$

$$x = .9$$