...a 10 → CALC

1) $\log x^2 = (\log x)^2$

$2\log x = (\log x)^2$

$y^2 - 2y = 0$

$y = 2 \quad y = 0$

$S: \frac{-b}{a} = \frac{2}{1} = 2 \quad P: \frac{c}{a} \to \frac{0}{1} = 0$

$\log x = 2 \to 100 \qquad x = 100 \text{ e } x = 1$

$\log x = 0 \to 1$

$\{1; 100\}$

2) $\log_3(3 - \log_2 x) = 0$

$3 - \log_2 x = 3^0$

$3 - \log_2 x = 1$

$3 - 1 = \log_2 x$

$2 = \log_2 x$

$x = 2^2$

$x = 4$

É divisível por 2

3) $\log_2 x + \log_2 x^2 + \log_2 x^3 = 6$

$\log_2 x + 2\log_2 x + 3\log_2 x = 6$

$6\log_2 x = 6$

$\log_2 x = 1$

$x = 2$

4) $(\log x)^2 - \log x^2 = 0$

$\log x^2 - 2\log x = 0$

$y^2 - 2y = 0$

$S: \frac{2}{1} = 2 \qquad P = 0 \to y = 2 \text{ e } y = 0$

$\log x = 2 \to x = 100,$

$\log x = 0 \to x = 1,$

$x' + x'' \Rightarrow 100 + 1 = 101$

5) $x^2 + 8x + 2\log a = 0$

$\Delta = 8^2 - 4.1.(2\log a) = 0$

$64 - 8\log a = 0$

$-8\log a = -64$

$\log a = 8$

$a = 10^8$

6) $F(x) = \log_{5\sqrt[3]{5}} x^4$

$F(5) = \log_{5\sqrt[3]{5}} 5^4 = x$

$(5\sqrt[3]{5})^x = 5^4$

$(5.5^{1/3})^x = 5^4$

$(5^{4/3})^x = 5^4$

$\frac{4}{3}x = 4$

$x = \frac{4}{3}.4$

$x = \frac{12}{3} \to x = 3 \to 300$ indivíduos

7) $m(t) = m_0 \cdot 10^{-t/10}$

$\frac{m_0}{8} = m_0 \cdot 10^{-t/10}$

$\frac{1}{8} = m_0 \cdot 10^{-t/10}$

$8^{-1} = m_0 \cdot 10^{-t/10}$

$\log 8^{-1} = \log 10^{-t/10}$

$-1\log_2 8 = -\frac{t}{10} \cdot \log 10$

$-1.\log_2 2^3 = -t/10$

$-3.\log 2 = -t/10$

$-0,9 = -t/10 \quad (-1)$

$0,9 = t/10$

$t = 0,9.10$

$t = 63$ anos

8) $2C = C(1+0,02)^t$

$2C = C(1,02)^t$

$2 = 1,02^t$

$\log 1,02^t = \log 2$

$t.\log 1,02 = \log 2$

$t = \frac{\log 2}{\log 1,02}$

$t = \frac{0,3010}{0,0086}$

$t = \frac{3010}{86}$

$t = 35$ meses

9) $pH = \log\left(\frac{1}{H^+}\right)$

$ph = \log\left(\frac{1}{1.10^{-8}}\right)$

$ph = \log\left(\frac{1}{10^{-8}}\right)$

$ph = \log 10^8$

$ph = 8.\log 10$

$ph = 8$

10) $G = 10.\log\left(\frac{I}{10^{-12}}\right)$

$G = 10.\log\left(\frac{10^{-12}}{10^{-12}}\right)$

$G = 10.\log 1$

$G = 10.0$

$G = 0\,dB$