Logarithm Practice Problems

I. For the following expressions, rewrite them in the form $y = A_0 b^x$.

1. $y = 2(3^{5x})$
2. $y = \dfrac{3^x}{1.36^{x-2}}$
3. $y = 2^{0.3x+4}$
4. $y = 3.54^x 2.7^x$
5. $y = 4^{2x-7}$
6. $y = 14^{5-x}$
7. $y = 8.43\,(1.06)^{3-2x}$

II. Give a decimal value for the solution to each of the following equations.

1. $3^{4x} = 8$
2. $\dfrac{2^x}{7^{1-x}} = 11$
3. $e^{6.2x-5.5} = 6^x$
4. $\log_5 x \log_2 x = \ln x$
5. $3(10^x) = 2^{x/2}$
6. $2^{3^x} = 10000$
7. $\ln(\ln x) = \log_{10}(\log_{10} x)$

Answers

I.

1. $y = 2(243^x)$
2. $y = 1.8496(2.20588235^x)$
3. $y = 16(1.2311444^x)$
4. $y = 9.558^x$
5. $y = \dfrac{1}{16384}16^x$
6. $y = 537824\left(\dfrac{1}{14}\right)^x$
7. $y = 10.040264880(0.88999644001^x)$

II.

1. $x = 0.473197315178593077824...$
2. $x = 1.64596857109085844590616546 7...$
3. $x = 1.247663316374633609717045466...$
4. $x = 1$ and $x = 3.05132935966580876772372709 1...$
5. $x = -0.56165942129876281626706250 01...$
6. $x = 2.35464299246610187433804888 4...$
7. $x = 1.69407934822941658616721902 4...$