9. $\ln(x^2+5) = \ln 41$

$e \quad e$

$x^2+5=41$

$x = \pm 6$

10. $8.3e^{9x} = 24.9$

$8.3 \quad 8.3$

$e^{9x} = 3$

$\ln \quad \ln$

$9x = \ln 3$

$9 \quad 9$

$x = .122$

11. $\log 50x = 2 + \log(2x-3)$

$\log \frac{50x}{2x-3} = 2$

$\frac{50x}{2x-3} = 10^2$

$50x = 200x - 300$

$x = 2$

12. PCR (Polymerase Chain Reaction) is a technique commonly used in forensics labs to amplify DNA. PCR uses an enzyme to cut a designated nucleotide sequence from DNA and then replicates the sequence. The number of identical nucleotide sequences *N* after *t* minutes can be modeled by $N(t) = 100 \cdot 1.17^t$. At what time will there be 10,000 sequences?

$\frac{10^4 = 10^2 \cdot 1.17^t}{10^2 \quad 10^2}$

$\ln 100 = t \ln 1.17$

$t = 29.33$ minutes