PROBLEMS AND SOLUTIONS - SOLVING LOGARITHMIC EQUATIONS
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Please Send Questions and Comments to ingrid.stewart@csn.edu. Thank you!

PLEASE NOTE THAT YOU CANNOT ALWAYS USE A CALCULATOR ON THE ACCUPLACER - COLLEGE-LEVEL MATHEMATICS TEST! YOU MUST BE ABLE TO DO SOME PROBLEMS WITHOUT A CALCULATOR!

Problem 1:

Solve $\log_4(x+3)=2$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x!

Problem 2:

Solve $\log(x-1)-\log(x+1)=1$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x!

Problem 3:

Solve $\ln x+\ln(2x-1)=2$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x! Round to 4 decimal places.

Problem 4:

Solve $\log(4x+2x^2)=\log(3x^2)$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x!

This logarithmic equation contains only logarithmic expressions. Therefore, we can discard the word *log* on either side, leaving us with an algebraic equation

Problem 5:

Solve $\log(2x-1)=\log(4x+3)-\log x$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x!

Problem 6:

Solve $\log(x+4) - \log x = \log(x+2)$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x! Round to 4 decimal places.

Problem 7:

Solve for **x**: $2\ln x = \ln(2-x) + \ln(4-x)$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x!

Problem 8:

Solve $\log(x-3) = \log(-x)$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x!

Problem 9:

Solve $\log(3 - \frac{1}{2}x) = \log(-x)$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x!

Problem 10:

Solve $\log x^2 = \log(-5x-6)$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x!

Problem 11:

Solve $2\log x = \log(-5x-6)$. Only find solutions that produce REAL numbers, except 0, in the original equation when substituting for x!

Problem 12:

A medical technologist creates a reagent with a pH of 7.48. Find the concentration of hydrogen ions $[H^+]$ in the reagent using the formula $pH = -\log[H^+]$. Express your answer in *Scientific Notation* rounded to two decimal places.

SOLUTIONS

You can find detailed solutions below the link for this problem set!

1. ***13***	2. No solutions	3. ***2.1883***
4. ***4***	5. ***3***	6. ***1.5616***
7. ***4/3***	8. No solutions	9. ***-6***
10. ***-3, -2***	11. No solutions	12. 3.31×10^{-8}