Solving Log Equations (2.13) Homework

For questions #1-10, solve the equation. Remember to check for extraneous solutions.

1. $3\log_2(x-3)+1=13$

2. $\frac{\log(3-x)+5}{2}=2$

3. $\ln(x+4)+\ln(x-3)=\ln(18)$

4. $\log_3(x+3)-\log_3(x-3)=1$

5. $\log_3(x-2)-\log_3(2x+1)=0$

6. $\ln(x)+3\ln(2)=\ln(x^2+12)$

7. $2\log_6(x+1) = \log_6(x+7)$

9. $2\log_4(x-2) = \log_4(3) + \log_4(8-x)$

8. $\ln(2x+5) - 1 = \ln(5)$

10. $\log_3(x-1) = 3 - \log_3(2x+1)$

11. Consider the functions f and g given by $f(x) = \log_5(3x+2)$ and $g(x) = \log_5(x-1) + \log_5(x+6)$. In the xy-plane, what are all x-coordinates of the points of intersection of the graphs of f and g?

12. Let $f(x) = \log_2(x-1)$ and $g(x) = \log_2(x+2) - 1$. Find all values of x where the graphs of f and g intersect.

13. The function g is given by $g(x) = (\log_2 x)^2 - 3(\log_2 x)$. Find all input values in the domain of g that yield an output value of 4.

Log Equations HW Answers

1. $x = 19$
2. $x = \frac{29}{10}$
3. $x = 5$
4. $x = 6$
5. No Solutions
6. $x = 2, 6$
7. $x = 2$
8. $x = \frac{5e-5}{2}$
9. $x = 5$
10. $x = 4$
11. $x = 2$
12. $x = 4$
13. $x = 16$ and $x = \frac{1}{2}$