Algebra 3 Assignment # 8
Properties of Logarithms 2

Solve for x please.

(1) $\log_4\left(x^2 - 1\right) - \log_4(5x - 11) = \frac{1}{2}$

(2) $\log_6(3x - 5) - \log_6\left(x^2 - 1\right) = \log_6(x) - 1$

(3) $\ln(4x + 1) + \ln\left(x^2 + x\right) = \ln(19x - 9)$

(4) $\log_8\left(3x^2 - 7\right) - \log_8\left(x^2 - x - 1\right) = \frac{2}{3}$

(5) $\ln\left(x^2 + 4\right) + \ln(3x + 4) = \ln(17x - 18)$

(6) $\log_2(x + 1) + \log_2(x - 5) = e^{2\ln(3)} - 3^{\log_9(25)}$

(7) $\log_3(x - 5) = \log_9(x + 7)$

(8) $3\left(\log_8(x)\right)^2 - \log_8(x) - 2 = 0$

(9) $2\left(\log_4(x)\right)^2 + 5\log_4(x) = 0$

(10) $\ln\left(2 - x^2\right) = 3$

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Answers

(1) $3\ ,\ 7$

(2) $2\ ,\ 3\ ,\ (\text{reject } -5)$

(3) $1\ ,\ \frac{3}{4}\ ,\ (\text{reject } -3)$

(4) $3\ ,$ (reject 1)

(5) $2\ ,\ \left(\text{reject } -1\ ,\ \frac{1}{3}\right)$

(6) $7\ ,$ (reject -3)

(7) $9\ ,$ (reject 2)

(8) $8\ ,\ \frac{1}{4}$

(9) $\frac{1}{32}\ ,\ 1$

(10) Ø