

1. Solve.

a) $9^{x+1} = 243$

b) $5^{x-3} = 137$

c) $9e^x = 99$

d) $\log_5 x = 3$

e) $6 \ln(2x) = 30$

$$f) \log_2(x - 1) + \log_2(x + 1) = 3$$

$$g) \log(2x - 1) = \log(x + 3) + \log 3 \quad (\text{Hint: combine RHS into a single logarithm first})$$

$$h) \log(x + 7) - \log 3 = \log(7x + 1) \quad (\text{Hint: combine LHS into a single logarithm first})$$

Q: A woman shoots her husband. Then she holds him under water for over 5 minutes. Finally, she hangs him. But 5 minutes later they both go out together and enjoy a wonderful dinner together. How can this be?