

1. Solve: $10^{1-x} = 6^x$

2. Solve: $e^x - \frac{12}{e^x} - 1 = 0$ (Hint: multiply by e^x)

3. Solve: $2 \log x = \log 2 + \log(3x - 4)$

Challenge: Solve $4^x - 2^{x+1} = 3$. (Hint: rewrite 4^x and 2^{x+1})

Q: What comes once in a minute, twice in a moment, but never in a thousand years?

4. Solve: $2^{3x-4} = 15$

5. Solve: $5^{4-x} = 7^{3x+1}$

6. Solve: $2 \ln x - \ln(x + 1) = 3$

7. Solve: $\log_2(x + 2) = 3 + \log_2(x - 1)$

8. Solve: $\log_3(3x - 5) - \log_3(x + 2) = 1$

9. Solve: $\log_3(x - 2) + \log_3(x - 4) = 2$

10. Solve: $\log_5(x + 6) = 1 - \log_5(x + 2)$

11. Solve: $\log x = 1 - \log(x - 3)$

12. Solve: $x^2(-2xe^{-x^2}) + 2xe^{-x^2} = 0$

13. Solve: $(2x + 1)^2 e^x + 2(2x + 1)(2)e^x = 0$

14. Solve: $2 \log_3(x + 3) - \log_3(x + 1) = 3 \log_3 2$

15. Solve: $\log_3 x - 2 \log_3 5 = \log_3(x + 1) - 2 \log_3 10$

16. Solve: $2^{2x} - 2 \cdot 2^x - 15 = 0$

17. Solve: $2e^{2x} + e^x - 1 = 0$

Optional exercises from the Sullivan book if you'd like more practice:
5.6 (p.311) #5-29 odd, 33-37 odd, 41-55 odd