Practice C

1. $\ln 2 + \ln 3 \approx 1.792$

2. $\ln 2 + \ln 5 - \ln 3 \approx 1.203$

3. $\ln 2 + \ln 3 + \ln 5 \approx 3.401$

4. $2 \ln 2 + \ln 3 \approx 2.485$

5. $\ln 2 - \ln 5 \approx -0.916$

6. $\ln 5 - \ln 3 - \ln 2 \approx -0.183$

7. $\log 8 + \log x$ **8.** $\log_3 x + \log_3 y + \log_3 z$

9. $\frac{1}{2} + \log_4 x + \log_4 y - \log_4 z$

10. $\ln x - \ln y - \ln z$

11. $\frac{1}{2}(\log 3 + \log x + \log y)$

12. $\frac{1}{2}\log_5 x - \log_5 y$ **13.** $\ln 3 + \ln y - \frac{1}{4}\ln x$

14. $3(\log 3 + \log x + \log y + 2 \log z)$

15. $4(\log_2 x + \log_2 y) - 2 \log_2 z$

16. $\log \dfrac{3}{28}$ **17.** $\ln \dfrac{3xz}{y}$ **18.** $\ln \dfrac{x^3}{y^2z^4}$

19. $\log_2 \dfrac{(x-4)(x+1)^5}{(x-1)^3}$

20. $\log_2 \dfrac{\sqrt{x+5}}{x^2} + \ln y$

21. $\ln\left[\dfrac{(x-2)(x+1)^2}{(x+2)(x-1)^5}\right]^3$

22. $y = \dfrac{\log x}{\log 3}$ or $y = \dfrac{\ln x}{\ln 3}$

23. $y = \dfrac{\log(x+3)}{\log 6}$ or $y = \dfrac{\ln(x+3)}{\ln 6}$

24. $y = \dfrac{\log(x-1)}{\log 2} + 3$ or $y = \dfrac{\ln(x-1)}{\ln 2} + 3$

25. $t = \dfrac{\ln(Sr + Pn) - \ln P - \ln n}{n(\ln(n + r) - \ln n)}$

26. ≈ 19.7 years