Answer Key for Logarithm Practice Problems

1. $\ln(5) + \ln(4) = \ln(20)$
2. $\ln(7) - \ln(2) = \ln\left(\frac{7}{2}\right)$
3. $2\ln(3) - \ln(6) = \ln(9) - \ln(6) = \ln\left(\frac{9}{6}\right) = \ln\left(\frac{3}{2}\right)$
4. $\ln(8) - \ln(2) - \ln(2) = \ln\left(\frac{8}{2 \cdot 2}\right) = \ln(2)$
5. $\ln(9) + \frac{1}{2}\ln(4) = \ln(9) + \ln(2) = \ln(18)$
6. $3\ln(2) - \ln(8) = \ln(8) - \ln(8) = 0$
7. $\ln(5x) - \ln(x) = \ln\left(\frac{5x}{x}\right) = \ln(5)$
8. $\ln\left(\frac{6}{x}\right) + \ln(x) = \ln\left(\frac{6}{x} \cdot x\right) = \ln(6)$
9. $\ln(x^2) - 2\ln(x) = \ln(x^2) - \ln(x^2) = 0$
10. $\ln(3) + \ln(7) - \ln(21) = \ln\left(\frac{3 \cdot 7}{21}\right) = \ln(1) = 0$
11. $\ln(10) - \ln(2) - \ln(5) = \ln\left(\frac{10}{2 \cdot 5}\right) = \ln(1) = 0$
12. $2\ln(5) - \ln(25) = \ln(25) - \ln(25) = 0$
13. $\ln(6) + \ln(2) - \ln(3) = \ln\left(\frac{6 \cdot 2}{3}\right) = \ln(4)$
14. $\ln(12) - \ln(4) = \ln\left(\frac{12}{4}\right) = \ln(3)$
15. $3\ln(3) - 2\ln(9) = \ln(27) - \ln(81) = \ln\left(\frac{27}{81}\right) = \ln\left(\frac{1}{3}\right) = -\ln(3)$
16. $\ln(18) - \ln(2) - \ln(9) = \ln\left(\frac{18}{2 \cdot 9}\right) = \ln(1) = 0$
17. $\ln(2x) + \ln(3x) - \ln(6x^2) = \ln\left(\frac{2x \cdot 3x}{6x^2}\right) = \ln(1) = 0$
18. $\ln\left(\frac{x^2}{4}\right) + \ln(4) = \ln\left(\frac{x^2}{4} \cdot 4\right) = \ln(x^2) = 2\ln(x)$
19. $\ln\left(\frac{9}{x}\right) + \ln(x) = \ln\left(\frac{9}{x} \cdot x\right) = \ln(9)$
20. $2\ln(7) - \ln(49) = \ln(49) - \ln(49) = 0$