10. $\ln \sqrt{\frac{x+3}{x^2}}$

$= \ln \left(\frac{x+3}{x^2}\right)^{\frac{1}{2}}$

$= \frac{1}{2} \ln \left(\frac{x+3}{x^2}\right)$

$= \frac{1}{2}\ln(x+3) - \frac{1}{2}\ln x^2$

$= \frac{1}{2}\ln(x+3) - \frac{1}{2}\cdot 2\ln x$

$= \boxed{\frac{1}{2}\ln(x+3) - \ln x}$

11. $\ln x + \ln y$

$= \boxed{\ln(xy)}$

12. $5\ln x - 7\ln y + 3\ln z$

$= \ln x^5 - \ln y^7 + \ln z^3$

$= \ln \frac{x^5}{y^7} + \ln z^3$

$= \boxed{\ln \frac{x^5 z^3}{y^7}}$

13. $\frac{1}{5}\left[3\ln(x-2) + 5\ln(x-4)\right]$

$\frac{1}{5}\left[\ln(x-2)^3 + \ln(x-4)^5\right]$

$\frac{1}{5}\ln\left[(x-2)^3(x-4)^5\right]$

$\ln\left[(x-2)^3(x-4)^5\right]^{\frac{1}{5}}$

$\ln\left[(x-2)^3\right]^{\frac{1}{5}}\left[(x-4)^5\right]^{\frac{1}{5}}$

$\boxed{\ln\left[\sqrt[5]{(x-2)^3(x-4)}\right]}$

14. $\frac{3}{5}\left[\ln(x-1) - \ln(x+3) - \ln(x-7)\right]$

$= \frac{3}{5}\left[\ln\frac{x-1}{x+3} - \ln(x-7)\right]$

$= \frac{3}{5}\ln\frac{x-1}{(x+3)(x-7)}$

$= \boxed{\ln\left[\frac{x-1}{(x+3)(x-7)}\right]^{\frac{3}{5}}}$