

Let $u = \ln y$, $dv = \frac{1}{\sqrt{y}} dy = y^{-1/2} dy \Rightarrow du = \frac{1}{y} dy$, $v = 2y^{1/2}$. Then

$$\begin{aligned}\int_{25}^{36} \frac{\ln y}{\sqrt{y}} dy &= [2\sqrt{y} \ln y]_{25}^{36} - \int_{25}^{36} 2y^{-1/2} dy = (12 \ln 36 - 10 \ln 25) - [4\sqrt{y}]_{25}^{36} \\ &= 12 \ln 36 - 10 \ln 25 - 4(6 - 5) = 12 \ln 36 - 10 \ln 25 - 4\end{aligned}$$