

$$\begin{aligned} \int \frac{(x-1)}{\sin^2 x} dx &= \\ &= \int \frac{x}{\sin^2 x} dx - \int \frac{1}{\sin^2 x} dx = \\ &= \int \frac{x}{\sin^2 x} dx + \operatorname{ctg} x = \\ &= -\operatorname{ctg} x \cdot x + \ln|\sin x| + \operatorname{ctg} x + C \end{aligned}$$

$$\begin{aligned} \int \frac{x}{\sin^2 x} dx &= uv - \int v du = -\operatorname{ctg} x \cdot x + \int (\operatorname{ctg} x) dx = \\ &= -\operatorname{ctg} x \cdot x + \ln|\sin x| \end{aligned}$$

$$\begin{aligned} u &= x \\ du &= dx \\ dv &= \frac{1}{\sin^2 x} dx \\ v &= \int \frac{1}{\sin^2 x} dx = -\operatorname{ctg} x \end{aligned}$$

$$\begin{aligned} z &= \sin(\ln t) \cdot t - (\cos(\ln t) \cdot t + z) \\ z &= t \sin(\ln t) - t \cos(\ln t) - z \\ 2z &= t \sin(\ln t) - t \cos(\ln t) \\ z &= \frac{t}{2} (\sin(\ln t) - \cos(\ln t)) \end{aligned}$$

$$\begin{aligned} \int \sin(\ln x/9) dx &= 9 \int \sin(\ln x/9) \cdot d(x/9) = \\ &= 9 \int \sin(\ln t) \cdot dt = 9 \cdot \frac{t}{2} (\sin(\ln t) - \cos(\ln t)) + C = \\ &= 9 \cdot \left(\frac{x}{18} (\sin(\ln x/9) - \cos(\ln x/9)) \right) + C \\ x/9 &= t \end{aligned}$$

$$\begin{aligned} 1) z &= \int \sin(\ln t) \cdot dt = \sin(\ln t) \cdot t - \int (t \cdot \cos(\ln t) \cdot 1/t) dt = \\ &= \sin(\ln t) \cdot t - \int \cos(\ln t) dt = \\ &= \sin(\ln t) \cdot t - (\cos(\ln t) \cdot t + \int \sin(\ln t) dt) = \end{aligned}$$

$$\begin{aligned} u &= \sin(\ln t) \\ du &= \cos(\ln t) \cdot 1/t dt \end{aligned}$$

$$\begin{aligned} dv &= dt \\ v &= t \end{aligned}$$

$$\begin{aligned} 2) \int \cos(\ln t) dt &= \cos(\ln t) \cdot t + \int (t \cdot \sin(\ln t) \cdot 1/t) dt = \\ &= \cos(\ln t) \cdot t + \int \sin(\ln t) dt \end{aligned}$$

$$\begin{aligned} u &= \cos(\ln t) \\ du &= -\sin(\ln t) \cdot 1/t dt \end{aligned}$$

$$\begin{aligned} dv &= dt \\ v &= t \end{aligned}$$