1 | $\int \frac{\sqrt{x-1}}{x} dx$

Let $u = \sqrt{x-1}$, $du = 1$

$$\int \frac{\sqrt{x-1}}{x} dx$$

* * * *

2 | $\int \tan^2 x + 1 dx$

$$\begin{aligned}
\int \tan^2 x + 1 dx &= \int \sec^2 x - 1 + 1 dx \\
&= \int \sec^2 x dx \\
\text{Let} u = x, du = 1& \\
&= \int \sec^2 u du \\
&= \tan u + C \\
&= \boxed{\tan x + C}
\end{aligned}$$

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