26.

$$\frac{8^x}{x^8}$$

Solution:

Let $y = \frac{8^x}{x^8}$

Taking log on both sides, we get $\log y = \log \frac{8^x}{x^8}$

$\Rightarrow \log y = \log 8^x - \log x^8 \Rightarrow \log y = x \log 8 - 8 \log x$

Differentiating both sides w.r.t. x

$$\frac{1}{y}.\frac{dy}{dx} = \log 8.1 - \frac{8}{x} \Rightarrow \frac{dy}{dx} = y\left[\log 8 - \frac{8}{x}\right]$$

Thus, $\frac{dy}{dx} = \frac{8^x}{x^8}\left[\log 8 - \frac{8}{x}\right]$