

[179] [in pencil down left-hand side] 25th Augst
1843

$$\frac{x}{x + \frac{x^2}{2} + \frac{x^3}{2 \cdot 3} + \dots}$$

$$\frac{1}{1 + \frac{x}{2} + \dots}$$

$$\begin{array}{ccc} 0 & \varphi x & \varphi' x \\ 0 & \psi x & \psi' x \end{array}$$

$$\frac{x}{\varepsilon^x - 1} \quad \frac{1}{\varepsilon^x}$$

Co. of x^{2n} in $\frac{\frac{1}{2}x}{\varepsilon^{\frac{x}{2}} + 1}$

$$= \frac{1}{2^{2n}} \text{ co. of } x^{2n} \text{ in } \frac{x}{\varepsilon^x + 1}$$

$$= \frac{1}{2^{2n}} \text{ co. of } x^{2n-1} \text{ in } \frac{1}{\varepsilon^x + 1}$$

$$= \frac{1}{2^{2n}} \frac{1}{1 \cdot 2 \cdot 3 \dots 2n-1} \left. \frac{d}{dx} \right|^{2n-1} \frac{1}{\varepsilon^x + 1}$$

when $x = 0$