

In[ ]:= **Series**  $\left[ \frac{1 - e^{-\epsilon}}{\epsilon}, \{\epsilon, 0, 3\} \right]$

Out[ ]:=

$$1 - \frac{\epsilon}{2} + \frac{\epsilon^2}{6} - \frac{\epsilon^3}{24} + O[\epsilon]^4$$

In[ ]:=  **$\alpha = (1 - e^{\epsilon});$**   
 **$\beta = (1 - e^{-\epsilon});$**   
**Expand**  $[\alpha + \beta - \alpha \beta]$

Out[ ]:=

$\emptyset$

In[ ]:=  **$\gamma[1] = 1 - e^{\epsilon};$**   
 **$\gamma[n_]$**  /;  $n > 0$  := **Expand**  $[\gamma[1] + \gamma[n - 1] - \gamma[1] \times \gamma[n - 1]]$

In[ ]:=  **$\gamma[10]$**

Out[ ]:=

$$1 - e^{10\epsilon}$$