

$$\text{AD} \$ f = \gamma \frac{\text{Cosh} \left[\hbar \left(a \epsilon + \frac{\gamma \epsilon}{2} - \frac{t}{2} \right) \right] - \text{Cosh} \left[\hbar \sqrt{\left(\frac{t - \gamma \epsilon}{2} \right)^2 + \epsilon \omega} \right]}{\hbar e^{\hbar \left((a + \gamma) \epsilon - t/2 \right)} \text{Sinh} \left[\frac{\gamma \epsilon \hbar}{2} \right] \left(a^2 \epsilon + a \gamma \epsilon - a t - \omega \right)} ;$$