

$$In[*]:= \left(\star A = \frac{\sqrt{\left((2\lambda_D \star \sigma)^2 + (\omega \star \epsilon \star \text{Pi})^2 + x_{\min} \star x_{\max} \right)^2 + (2\lambda_D \star \sigma \star \omega \star \epsilon \star \text{Pi} (x_{\max} - x_{\min}))^2}}{(2\lambda_D \star \sigma)^2 + (\omega \star \epsilon \star \text{Pi} \star x_{\min})^2}; \star \right)$$

$$A = \frac{\left(2 \lambda_D \star \sigma \right)^2 + \left(\omega \star \epsilon \star \text{Pi} \star x_{\max} \right)^2}{\left(2 \lambda_D \star \sigma \right)^2 + \left(\omega \star \epsilon \star \text{Pi} \star x_{\min} \right)^2};$$

$$\theta = \text{ArcTan} \left[\frac{2 \lambda_D \star \sigma \star \omega \star \epsilon \star \text{Pi} (x_{\max} - x_{\min})}{\left(2 \lambda_D \star \sigma \right)^2 + \left(\omega \star \epsilon \star \text{Pi} \right)^2 x_{\min} \star x_{\max}} \right];$$

⌊反正切

$$Z_0 = \frac{\text{Pi} \left(\sqrt{k} + \frac{1}{\sqrt{k}} \right)}{2 \, 1 \star \sigma} \star \frac{\sqrt{\text{Log}[A]} - \text{I} \star \theta}{\text{Log}[A] + \theta^2}$$

$$Out[*]:= \frac{\left(\frac{1}{\sqrt{k}} + \sqrt{k} \right) \pi \left(-\text{i} \, \text{ArcTan} \left[\frac{2 \pi \epsilon \sigma \omega (x_{\max} - x_{\min}) \lambda_D}{\pi^2 \epsilon^2 \omega^2 x_{\max} x_{\min} + 4 \sigma^2 \lambda_D^2} \right] + \sqrt{\text{Log} \left[\frac{\pi^2 \epsilon^2 \omega^2 x_{\max}^2 + 4 \sigma^2 \lambda_D^2}{\pi^2 \epsilon^2 \omega^2 x_{\min}^2 + 4 \sigma^2 \lambda_D^2} \right]} \right)}{2 \, 1 \, \sigma \left(\text{ArcTan} \left[\frac{2 \pi \epsilon \sigma \omega (x_{\max} - x_{\min}) \lambda_D}{\pi^2 \epsilon^2 \omega^2 x_{\max} x_{\min} + 4 \sigma^2 \lambda_D^2} \right]^2 + \text{Log} \left[\frac{\pi^2 \epsilon^2 \omega^2 x_{\max}^2 + 4 \sigma^2 \lambda_D^2}{\pi^2 \epsilon^2 \omega^2 x_{\min}^2 + 4 \sigma^2 \lambda_D^2} \right] \right)}$$

$$In[*]:= Z = \frac{1}{\int_{x_{\min}}^{x_{\max}} \frac{2 \sqrt{k} \epsilon \sigma \omega}{(1+k) (\pi x \epsilon \omega - 2 \text{i} \sigma \lambda_D)} \, \text{d} x}$$

$$Out[*]:= \left((1+k) \pi \right) / \left(\sqrt{k} \sigma \left(2 \text{i} \, \text{ArcTan} \left[\frac{\pi \epsilon \omega x_{\max}}{2 \sigma \lambda_D} \right] - 2 \text{i} \, \text{ArcTan} \left[\frac{\pi \epsilon \omega x_{\min}}{2 \sigma \lambda_D} \right] + \text{Log} \left[\pi^2 \epsilon^2 \omega^2 x_{\max}^2 + 4 \sigma^2 \lambda_D^2 \right] - \text{Log} \left[\pi^2 \epsilon^2 \omega^2 x_{\min}^2 + 4 \sigma^2 \lambda_D^2 \right] \right) \right) \text{ if } \text{condition} \star$$