How to differentiate $x=L \sin \left(\frac{\theta}{2}\right)+L / 2 \sin \left(\frac{\theta}{2}\right)$

## Solution:

$$
\begin{gathered}
x=L \sin \left(\frac{\theta}{2}\right)+L / 2 \sin \left(\frac{\theta}{2}\right)=\frac{3}{2} L \sin \left(\frac{\theta}{2}\right) \\
\frac{d x}{d \theta}=\frac{3}{2} \cdot \frac{1}{2} L \cos \left(\frac{\theta}{2}\right)=\frac{3}{4} L \cos \left(\frac{\theta}{2}\right)
\end{gathered}
$$

Answer: $\frac{d x}{d \theta}=\frac{3}{4} \operatorname{Lcos}\left(\frac{\theta}{2}\right)$.

