Solution

$$\frac{d^2}{dx^2}\left(\arcsin\left(\frac{b}{L}\sin\left(\arccos\left(\frac{x}{b}\right)\right)\right)\right) = -\frac{b\sqrt{L^2}\left(x^4-b^4+b^2L^2\right)}{L\sqrt{b^2}\left(L^2-b^2+x^2\right)\left(b^2-x^2\right)\sqrt{-x^2+b^2}\sqrt{x^2+L^2-b^2}}$$

Steps

$$\frac{d^2}{dx^2}\left(\arcsin\left(\frac{b}{L}\sin\left(\arccos\left(\frac{x}{b}\right)\right)\right)\right)$$

Simplify $\arcsin\left(\frac{b}{L}\sin\left(\arccos\left(\frac{x}{b}\right)\right)\right)$: $\arcsin\left(\frac{b\sqrt{b^2-x^2}}{L\sqrt{b^2}}\right)$ *Show Steps*

$$= \frac{d^2}{dx^2}\left(\arcsin\left(\frac{b\sqrt{b^2-x^2}}{L\sqrt{b^2}}\right)\right)$$

$\frac{d}{dx}\left(\arcsin\left(\frac{b\sqrt{b^2-x^2}}{L\sqrt{b^2}}\right)\right) = -\frac{bx\sqrt{L^2}}{L\sqrt{b^2}\sqrt{L^2-b^2+x^2}\sqrt{b^2-x^2}}$ *Show Steps*

$$= \frac{d}{dx}\left(-\frac{bx\sqrt{L^2}}{L\sqrt{b^2}\sqrt{L^2-b^2+x^2}\sqrt{b^2-x^2}}\right)$$

$\frac{d}{dx}\left(-\frac{bx\sqrt{L^2}}{L\sqrt{b^2}\sqrt{L^2-b^2+x^2}\sqrt{b^2-x^2}}\right) = -\frac{b\sqrt{L^2}\left(x^4-b^4+b^2L^2\right)}{L\sqrt{b^2}\left(L^2-b^2+x^2\right)\left(b^2-x^2\right)\sqrt{-x^2+b^2}\sqrt{x^2+L^2-b^2}}$ *Show Steps*

$$= -\frac{b\sqrt{L^2}\left(x^4-b^4+b^2L^2\right)}{L\sqrt{b^2}\left(L^2-b^2+x^2\right)\left(b^2-x^2\right)\sqrt{-x^2+b^2}\sqrt{x^2+L^2-b^2}}$$