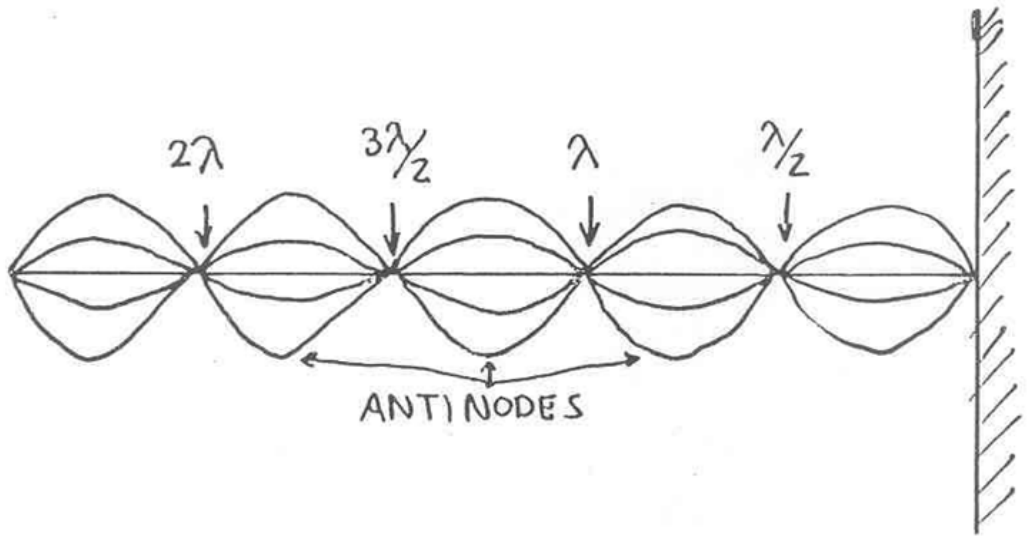
Nodes of transverse displacement occur at *x*-values along the string where $\sin(2\pi x/\lambda) = 0$
= *x*-positions along the string where the transverse displacement is ***minimum***: $y(x,t) = 0$

$\sin(2\pi x/\lambda) = 0$ when: $(2\pi x/\lambda) = 0\pi, 1\pi, 2\pi, 3\pi .... = n\pi, \quad n = 0,1,2,3\ldots$

Thus, we see that **nodes** occur at: $x = \frac{n}{2}\lambda = \frac{0}{2}\lambda, \frac{1}{2}\lambda, \frac{2}{2}\lambda, \frac{3}{2}\lambda .... \quad n = 0,1,2,3\ldots$



Anti-Nodes of transverse displacement occur at *x*-values along the string where $\sin(2\pi x/\lambda) = 1$
= *x*-positions along the string where transverse displacement is ***maximum***: $y(x,t) = A$

$\sin(2\pi x/\lambda) = 1$ when $(2\pi x/\lambda) = \frac{1\pi}{2}, \frac{3\pi}{2}, \frac{5\pi}{2} .... = m\frac{\pi}{2}, \quad m = 1,3,5,\ldots$

Thus, we see that ***anti-nodes*** occur at: $x = \frac{m}{4}\lambda = \frac{1}{4}\lambda, \frac{3}{4}\lambda, \frac{5}{4}\lambda .... \quad m = 1,3,5,\ldots$