

The cosine function has its maximum value at $x = 0$ and then again at the end of one cycle. The value of x at that point is the length of one cycle, or one period of $y = \cos\left(\frac{1}{2}x\right)$. You may have realized this but miscalculated the period. Remember that the period of $y = a\cos bx$ is $\frac{2\pi}{|b|}$.