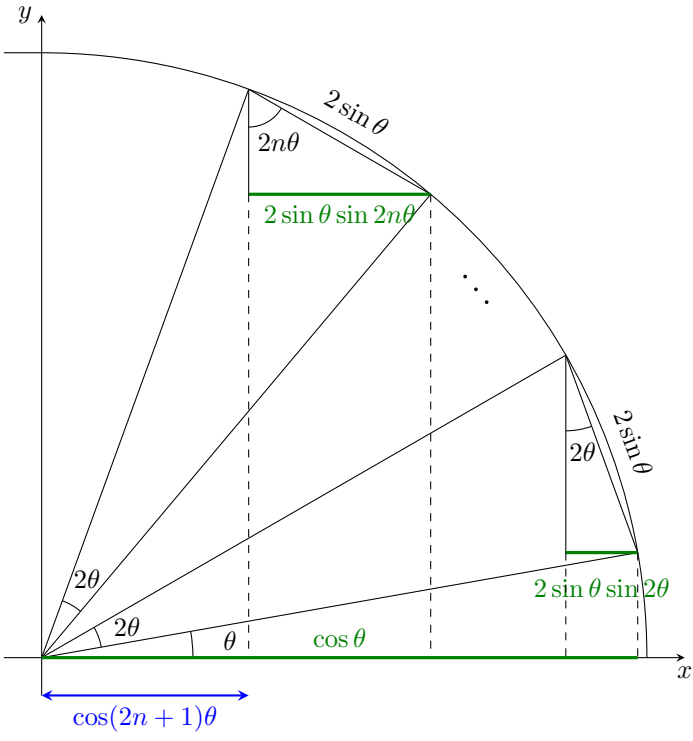

$$\cos(2n+1)\theta = \cos\theta - 2\sin\theta \sum_{k=1}^{n} \sin 2k\theta$$

$$\sum_{k=1}^{n} \sin 2k\theta = \frac{\cos\theta}{2\sin\theta} - \frac{\cos(2n+1)\theta}{2\sin\theta} = \frac{1}{2}\cot\theta - \frac{\cos(2n+1)\theta}{2\sin\theta}$$