

$$\frac{\tan(\pi - \alpha) + r \tan(\pi + \alpha)}{\tan(r\pi - \alpha) - \tan(r\pi + \alpha)} = \frac{-\tan \alpha + r \tan \alpha}{-\tan \alpha - \tan \alpha} = \frac{r \tan \alpha}{-r \tan \alpha} = -1$$

$$\tan \nu_2 = \tan(90^\circ - 12^\circ) = \cot 12^\circ, \tan 12^\circ = \tan(110^\circ - \nu_2) = -\tan \nu_2$$

$$\tan 192^\circ = \tan(110^\circ - 12^\circ) = -\tan 12^\circ, \tan \nu_2 = \tan(110^\circ - \nu_2) = \tan \nu_2$$

$$\rightarrow \tan \nu_2, \cot 12^\circ = -\frac{1}{a}$$

$$\frac{12^\circ}{110^\circ} = \frac{\text{Rad}}{\pi}$$

$$\frac{\text{Rad}}{\pi} = \frac{D}{110^\circ}$$

$$\tan \frac{\pi}{12} = \alpha$$

$$A = \frac{r \times \frac{1}{a} + (-\frac{1}{a})}{r \times (-a) - \frac{1}{a}} = \frac{\frac{1}{a}}{-ra - \frac{1}{a}} \Rightarrow -\frac{1}{ra+1}$$

$$\frac{\sin x + \cos x}{\sin x - \cos x} + \frac{\sin x - \cos x}{\sin x + \cos x} = r \xrightarrow{\frac{a}{b} + \frac{b}{a} = \frac{a^2+b^2}{ab}} \frac{(\sin x + \cos x)^2 + (\sin x - \cos x)^2}{(\sin x + \cos x)(\sin x - \cos x)} = r$$

$$\rightarrow \frac{r(\sin^2 x + \cos^2 x)}{\sin^2 x - \cos^2 x} = r$$

$$\rightarrow \sin^2 x - \cos^2 x = \frac{r}{r} \rightarrow \cos^2 x = -\frac{r}{r}$$

$$\tan^2 x = \frac{\sin^2 x}{\cos^2 x} = \frac{1 - \cos^2 x}{1 + \cos^2 x} = \frac{\frac{2}{r}}{\frac{1}{r}} = 2$$

$$\frac{\sin^2 x - r \cos^2 x + 1}{\sin^2 x + r \cos^2 x - 1} = r \xrightarrow{\sin^2 x = 1 - \cos^2 x} \frac{(1 - \cos^2 x) - r \cos^2 x + 1}{(1 - \cos^2 x) + r \cos^2 x - 1} = \frac{r - r \cos^2 x}{\cos^2 x} \rightarrow r - r \cos^2 x = r \cos^2 x$$

$$\rightarrow \cos^2 x = \frac{r}{2}$$

$$\sin^2 x = \frac{2}{2}$$

$$\tan^2 x = \frac{\sin^2 x}{\cos^2 x} = \frac{\frac{2}{2}}{\frac{r}{2}} = \frac{2}{r}$$

$$\cos 2\nu_2 = \frac{(1 + \frac{\sqrt{r}}{r})r}{\sqrt{r+\sqrt{r}}r} = \frac{r+\sqrt{r}}{\sqrt{r+\sqrt{r}}} = \frac{r+\sqrt{r}}{r\sqrt{r+\sqrt{r}}} \times \frac{\sqrt{r-\sqrt{r}}}{\sqrt{r-\sqrt{r}}} = \frac{\sqrt{r+\sqrt{r}}}{r}$$

$$\sin(4\nu_2) = \sin(90^\circ - 2\nu_2) = \cos 2\nu_2 = \frac{\sqrt{r+\sqrt{r}}}{r}$$