Identutus.
Pie $\quad \operatorname{Cos} A \operatorname{Tan} A=\operatorname{Sim} A$
Rubes (i) Each side is separate.
(ii) Change to Sun and Cord
(iii) Use tables or algebra.

$$
\begin{aligned}
& \operatorname{Cos} A \operatorname{Tan} A=\operatorname{Sin} A \\
& \operatorname{Cos} A \cdot \frac{\operatorname{Sin} A}{\operatorname{Cin} A}=\operatorname{Sin} A \\
& Q E D
\end{aligned}
$$

Pres

$$
\begin{gathered}
\operatorname{Sin} A \cdot \operatorname{Ton} A+\operatorname{Cos} A=\operatorname{Sec} A \\
\operatorname{Sn} A \cdot \frac{\operatorname{Sn} A}{\operatorname{Con} A}+\operatorname{Cos} A=\frac{1}{\operatorname{Cos} A} \\
\frac{\operatorname{Sin}^{2} A}{\operatorname{Cos} A}+\frac{\operatorname{Cos} A}{1} \\
\frac{\operatorname{Sin}^{2} A+\operatorname{Cos}^{2} A}{\operatorname{Cos} A} \\
\frac{1}{\operatorname{Cos} A} \operatorname{CoCD}
\end{gathered}
$$

Prose

$$
\begin{aligned}
& \frac{\sin \theta}{\sqrt{1-\sin ^{2} \theta}}=\tan \theta \\
& \frac{\sin \theta}{\sqrt{\cos ^{2} \theta}}=\frac{\sin \theta}{\cos \theta} \\
& \frac{\sin \theta}{\operatorname{Cos} \theta}
\end{aligned}
$$

$$
\begin{aligned}
& \sin ^{2} \theta+\cos ^{2} \theta=1 \\
& \sin ^{2} \theta=1-\cos ^{2} \theta \\
& \cos ^{2} \theta=1-\sin ^{2} \theta \\
& \frac{(1+\cos \theta)(1-\operatorname{Cos} \theta)}{\cos ^{2} \theta}=\tan ^{2} \theta \\
& \frac{1-\cos ^{2} \theta}{\cos ^{2} \theta}=\frac{\operatorname{Sin}^{2} \theta}{\cos ^{2} \theta} \\
& \frac{\sin ^{2} \theta}{\cos ^{2} \theta} \\
& \text { QED } \\
& (\cos \theta+\sin \theta)^{2}+(\cos \theta-\sin \theta)^{2}=2 \\
& \cos ^{2} \theta+2 \cos ^{2} \theta \sin \theta+\sin ^{2} \theta+\cos ^{2} \theta-2 \cos ^{2} \theta \sin \theta+\sin ^{2} \theta \\
& 2\left(\cos _{2}^{2} \theta+\sin ^{2} \theta\right) \\
& Q \leq D \\
& \frac{1}{1-\sin A}+\frac{1}{1+5 n A}=2 \sec ^{2} A \\
& \frac{1+\sin A+1-\sin A}{(1-\sin A)(1+\sin A)}=2\left(\frac{1}{\cos ^{2} A}\right) \\
& \frac{2}{1-\operatorname{Sin}^{2} A}=\frac{2}{\operatorname{Cos}^{2} A} \\
& \frac{2}{\cos ^{2} A}=\frac{2}{\cos ^{2} A} \\
& \frac{\tan \theta+\sin \theta}{\sec \theta+1}=\sin \theta \\
& \frac{\frac{\sin \theta}{\cos \theta}+\frac{\sin \theta}{1}}{\frac{1}{\cos \theta}+\frac{1}{1}}=\sin \theta
\end{aligned}
$$

$$
\begin{aligned}
& \frac{\frac{\operatorname{Sin} \theta+\operatorname{Sin} \theta \operatorname{Cos} \theta}{\operatorname{Cos} \theta}}{\frac{1+\operatorname{Cos} \theta}{\operatorname{Cos} \theta}} \\
& \frac{\operatorname{Sin} \theta+\operatorname{Sin} \theta \operatorname{Cos} \theta}{1+\operatorname{Cos} \theta} \\
& \frac{\sin \theta(1+\operatorname{Cos} \theta)}{1+\operatorname{Cos} \theta}
\end{aligned}
$$

Double and Compund angle.
Prus

$$
\operatorname{Sin} 2 A=\frac{2 \tan \lambda}{1+\tan ^{2} \lambda}
$$

$$
\underset{\frac{2}{A} A}{2 \operatorname{Sn} A \operatorname{Cos} A}=\frac{2 \frac{\operatorname{Sn} A}{\operatorname{Cos} A}}{1+\frac{\operatorname{Sn}^{2} A}{\operatorname{Cos}^{2} A}}
$$

$$
\begin{aligned}
& \frac{1}{1}+\frac{\sin ^{2} A}{\cos ^{2} A} \\
& \frac{\operatorname{Cos}^{2} A+\operatorname{Sn}^{2} A}{\operatorname{Cos}^{2} A}=\frac{\frac{2 \operatorname{Sn} A}{\operatorname{Cos} A}}{\frac{\operatorname{Cos}^{2} A+\operatorname{Sn}^{2} A}{\operatorname{Cos}^{2} A}} \\
& \frac{1}{\cos ^{2} A}=\frac{\frac{2 \sin A}{\cos A}}{\frac{1}{\cos ^{2} A}} \\
& =\frac{2 \operatorname{Sin} A}{\operatorname{Cos} A} \cdot \frac{\operatorname{Cos}_{2}^{2} A}{1} \\
& =25 n A \operatorname{Cos} A \text { QED } \\
& 1-(\operatorname{Cos} x-\operatorname{Sin} x)^{2}=\operatorname{Sin} 2 x \\
& 1-\left(\operatorname{Cos}^{2} x+\sin ^{2} x-2 \sin x \cos x=2 \sin x \cos x\right. \\
& 1+2 \sin A \cos A \\
& \frac{\sin ^{2} \theta}{\cos ^{2} \theta} \cos 3 \theta
\end{aligned}
$$

Pres

$$
\begin{aligned}
& \frac{\cos 2 A}{\operatorname{Cos} A+\sin A}=\cos A-\sin A \\
& \frac{\cos ^{2} A-\sin ^{2} A}{\cos A+\sin A}=\cos A-\sin A
\end{aligned}
$$

$$
\frac{(\operatorname{Cos} A-\operatorname{Sin} A)(\operatorname{Con} A+\operatorname{Sn} A)}{\operatorname{Cos}_{2} A+\operatorname{Sn} A}
$$

Sha

$$
\frac{\operatorname{Sin} 2 A}{1+\operatorname{Cos} 2 A}=\tan A
$$

Hence prove $\tan 22 \frac{1}{2}=\sqrt{2}-1$

$$
\begin{aligned}
& \frac{2 \operatorname{Sn} A \operatorname{Los} A}{1+\operatorname{Cos}^{2} A-\operatorname{Sn}^{2} A} \frac{\sin A}{\operatorname{Cos} A} \\
& \cos ^{2} A+\sin ^{2} A=1 \\
& \begin{array}{r}
\left.\frac{2 \operatorname{Sin} A \operatorname{Cos} A}{2 \cos ^{2} A} \quad \begin{array}{c}
1-\sin ^{2} A+\cos ^{2} A \\
\cos ^{2} A+\cos ^{2} A \\
2 \cos ^{2} A
\end{array}\right)
\end{array} \\
& \tan A=\frac{\sin 2 A}{1+\cos 21} \text { Let } A=22^{\frac{1}{2}} \\
& \tan 22 \frac{1}{2}=\frac{\operatorname{Sn} 2 r}{1+\cos ^{2} 45} \\
& =\frac{\frac{1}{\sqrt{2}}}{\frac{1}{1}+\frac{1}{\sqrt{2}}}
\end{aligned}
$$

$$
\begin{aligned}
(1+\sqrt{2})(1-\sqrt{2}) & =\frac{\frac{1}{\sqrt{2}}}{\frac{\sqrt{2}+1}{\sqrt{2}}} & =\frac{1}{\sqrt{2}} \frac{\sqrt{2}}{1+\sqrt{2}} \\
1-\sqrt{2}^{2} & =\frac{1}{1+\sqrt{2}} \cdot \frac{1-\sqrt{2}}{1-\sqrt{2}} & =\frac{1-\sqrt{2}}{-1} \\
1-2=1 & & =\sqrt{2}-1
\end{aligned}
$$

Small Letters
Prus

$$
\begin{gathered}
b c \cos A+a c \cos B=c^{2} \\
a^{2}=b^{2}+c^{2}-2 b c \cos A \\
2 b c \cos A=b^{2}+c^{2}-a^{2} \\
b c \cos A=\frac{b^{2}+c^{2}-a^{2}}{2} \\
b^{2}=a^{2}+c^{2}-2 a c \cos B \\
2 a c \cos B=a^{2}+c^{2}-b^{2} \\
a c \cos B=\frac{a^{2}+c^{2}-b^{2}}{2} \\
b c \cos A+a^{2} C_{0} B \\
b^{2}+c^{2}-a^{2}+\frac{a^{2}+c^{2}-b^{2}}{2} \\
2
\end{gathered}
$$

Proe $b \operatorname{Cos} C+C \operatorname{Cos} B=a$

$$
\begin{aligned}
c^{2}= & a^{2}+b^{2}-2 a b \cos c \\
2 a b \cos c= & a^{2}+b^{2}-c^{2} \\
b \cos c= & \frac{a^{2}+b^{2}-c^{2}}{2 a}
\end{aligned}
$$

$$
b^{2}=a^{2}+c^{2}-2 a c \cos D
$$

$$
2 a c C u s B=a^{2}+c^{2}-b^{2}
$$

$$
C \operatorname{Cos} B=\frac{a^{2}+c^{2}-b^{2}}{2 a}
$$

$$
\frac{a^{2}+b^{2}-e^{x}}{2 a}+\frac{a^{2}+a^{2}-b^{2}}{2 a}
$$

$$
\frac{2 a^{2}}{2 a}=c
$$

