$$
\begin{aligned}
& x^{2}+y^{2}=1^{2} \\
& y=\sin \theta \\
& x=\cos \theta \\
& \sqrt{ } \cos ^{2} \theta+\sin ^{2} \theta=1 \\
& -\sin ^{2} \theta-\sin ^{2} \theta \\
& \cos ^{2} \theta=(\cos \theta)^{2} \\
& \cos ^{2} \theta=1-\sin ^{2} \theta \\
& \sin ^{2} \theta=1-\cos ^{2} \theta \\
& \sin ^{2} \theta-1=-\cos ^{2} \theta \\
& \frac{\sin ^{2} \theta}{\sin ^{2} \theta}+\frac{\cos ^{2} \theta}{\sin ^{2} \theta}=\frac{1}{\sin ^{2} \theta} . \\
& (\cot \theta)^{2}=\left(\frac{\cos \theta}{\sin \theta}\right)^{2} \\
& \cot ^{2} \theta=\frac{\cos ^{2} \theta}{\sin ^{2} \theta} \\
& \begin{array}{l}
1+\frac{\cos ^{2} \theta}{\sin ^{2} \theta}=\frac{1}{\sin ^{2} \theta} \\
1+\cot ^{2} \theta=\csc ^{2} \theta \\
1=\csc ^{2} \theta-\cot ^{2} \theta
\end{array} \\
& \left(\frac{1}{\sin \theta}\right)^{2}=(\csc \theta)^{2} \\
& \frac{1}{\sin ^{2} \theta}=\csc ^{2} \theta \\
& \frac{\sin ^{2} \theta}{\cos ^{2} \theta}+\frac{\cos ^{2} \theta}{\cos ^{2} \theta}=\frac{1}{\cos ^{2} \theta} \\
& \tan ^{2} \theta+1=\sec ^{2} \theta
\end{aligned}
$$

(ex2) a. a. If $\sec \theta=\frac{3}{2}$, find $\cos \theta=\frac{2}{3}$

$$
\frac{1}{3 / 2}=1 \cdot \frac{2}{3}
$$

b. If $\csc \theta=\frac{4}{3}$, find $\tan \theta$.

$$
\begin{aligned}
& \sin \theta \xrightarrow{ } \stackrel{\cot \theta}{ } \\
& 1+\cot ^{2} \theta=\csc ^{2} \theta \\
& 1+\cot ^{2} \theta=\left(\frac{4}{3}\right)^{2} \\
& 1+\cot ^{2} \theta=\frac{16}{9}-\frac{9}{9} \\
& \begin{array}{l}
\sqrt{\cot ^{2} \theta} \pm \sqrt{\frac{7}{9}} \\
\cot \theta= \pm \frac{\sqrt{7}}{3}
\end{array} \quad \begin{array}{l}
\text { 年 } \theta= \pm \frac{3 \sqrt{7}}{7}
\end{array} \quad \\
& \begin{array}{l}
-\frac{2}{p .428} \\
25-29,35-36
\end{array}
\end{aligned}
$$

