

We now write an expression for τ' as

$$\tau \hat{O} = \frac{V \hat{O}}{A \hat{C}}$$

And, substitution of the above equation for V' and also the expression for A' gives

$$\begin{aligned}\tau' &= \frac{V \hat{O}}{A \hat{C}} \\ &= \frac{P \sin \theta}{\frac{A}{\cos \theta}} \\ &= \frac{P}{A} \sin \theta \cos \theta \\ &= \sigma \sin \theta \cos \theta\end{aligned}$$

which is just Equation 6.4b.