Use Mathcad to Solve the Equations:
The "isolve" command can be used to determine the unknowns for a set of linear equations. However, we will demonstrate how to use Mathcad to take care of the algebra and units after we set up the solution by hand using substitution.

\[
F_A = \frac{F_c \cos 12}{\cos \theta_0}
\]

\[
F_A \sin \theta_0 + F_c \sin 12 = 200
\]

Now plug these equations into Mathcad:

\[
F_C := \frac{200 \cdot \text{lbf}}{\cos(12 \cdot \text{deg}) \cdot \sin(40 \cdot \text{deg}) + \sin(12 \cdot \text{deg})} = 194.4 \text{ lbf}
\]

Keystrokes to enter and evaluate the expression above:

\[
F \text{ <ctrl & -}> C :
\]

Enter the left hand side. Note that pressing the ctrl and minus keys at the same time allow you to input a subscript

\[
200 \cdot \text{lbf} \text{ <space x 2> } / \text{cos}(12 \cdot \text{deg} \text{ <space x 3> } / \text{cos}(40 \cdot \text{deg} \text{ <space x 4> } \cdot \sin(40 \cdot \text{deg} \text{ <space x 4> } \text{+ sin}(12 \cdot \text{deg})
\]

Enter the first term in the denominator. Experiment with pressing the space bar.

\[
= \text{ }
\]

Pressing the equal sign will evaluate the expression.

Now, to change the units from Newtons to pounds, use your mouse to click on the "N" symbol and just change it to lbf (where lbf is pounds force).

\[
F_A := \frac{F_C \cdot \cos (12 \cdot \text{deg})}{\cos (40 \cdot \text{deg})} = 248.3 \text{ lbf}
\]

Use the same techniques as above to compute \( F_A \).