Instructions: Return these assignment sheets stapled to the top of your completed homework assignment. Place answers in boxes provided or fill in the blanks on these sheets. An empty box or blank = 0 pts. Wrong answer without work on page numbers = 0 pts. Wrong answer with work on page numbers but no page numbers = 0 pts. Wrong answer + work on pgs. + numbered attached pages = partial credit.

Following the approach in our textbook and the notes, determine the solutions of the pinned shallow arch as a function of the applied radial load.

A. Find the coefficients $A$ and $B$ in Eq. (8.16) for the pinned case. Simplify as much as possible. Work on pg. ___.

\[
A = \\
B = 
\]

B. Calculate the roots of Eq. (8.16) for $\lambda = 1$ and $\lambda = 2$. Plots of $\alpha^2 p$ versus $\mu$ on pg. ___. Plots of $\alpha^2 p$ versus $\bar{w}/\alpha^2$ on pg. ___.

C. Numerically determine the minimum value of $\lambda$ and $p$ at which buckling occurs. Work on pg. ___.

\[
\lambda_{crit} = \\
p_{crit} = 
\]

D. Determine for what values of $\mu$ and $\lambda$ one can expect asymmetric buckling. Work on pg. ___.

\[
\mu_{crit} = \\
\lambda_{crit} = 
\]